a multicultural education database

- a feasibility study

prepared by **adp '84** under contract to the canadian council for multicultural and intercultural education, may 1984

executive summary

department of educational administration
university of alberta

ADP '84 consists of the following persons:

Project Team Members:	Bonnie Austen Joyce Baird Stanley Bara Jerry Bayly Sherry Bennett Sheryl L. Boblin Betty Boult Deborah B. Dancik Dan Garvey Barb Gibson Phyllis Kalynchuk Marilyn Kimura LeRoy Larson Wendy M. McLachlin Mary Pat Skene Helene Smyk Sharon Wood
Project Director:	T. Craig Montgomerie
Associate Project Director:	Deborah B.
Project Manager:	Frank Peters

This study identified alternatives for the design, implementation and operation of a national information management system in multicultural education resources and materials and assessed the feasibility of implementing such a database. In particular this project: (a) determined the extent of resources and materials in Canada in multicultural and intercultural education; (b) identified and described existing information management systems capable of supporting a database of resources and materials and lists of persons and agencies; (c) developed a set of requiremnents for the proposed database; (d) identified possible sources and amounts of funding for the development, implementation and maintenance for the database; (e) developed a prototype information management system which assisted the study team in examining potential problems and possible configurations in the development of such a database; (g) recommended the most feasible system; and (h) recommended mechanisms and procedures for the design, implementation and operation of the recommended system.

Sources of information for the study were potential users of the system, experts in information management and library systems, and document research and review of published literature.

Data were collected by means of: (a) questionnaires, followed by telephone and personal interviews; (b) letters to system suppliers asking for system specifications, also followed by telephone calls; (c) in-person interviews with and presentations by a number of suppliers and experts; (d) observations of working systems; (e) an in-depth review of the literature; and (f) the development of a prototype system. and some of the problems of the proposed database.

The major findings of the study were:

1. There is a great deal of support for the proposed database by individuals, organizations and institutions across Canada.
2. Users, in regard to preference of materials for inclusion in the database, ranked print materials first and lists of resource persons and agencies second.
3. All groups indicated a preference for centralization of identification, collection, indexing and loaning of materials except for professional librarians who preferred regional identification.

4. Individual agencies exist which would be willing to perform the functions of identification, collection, indexing and loaning of materials and resources.
5. Commercial database operators exist who have the capability and interest in implementing and operating the database.

The recommendations of the study are:

1. there must be a single set of standards for (a) bibliographic description and (b) for the operation of the entire computer system.
2. there should be a single authority to manage the operation of the database.
3. the database should:
   a. consist of a centralized computer system to operate the database;
   b. be developed on a central timeshared mainframe computer;
   c. be developed and operated under contract by QL Systems;
4. heritage languages should not be included in the database;
5. the database should list the titles of materials in the language of production and include either a bilingual or English thesaurus;
6. the database should list all types of materials regardless of their format, as well as resource people and agencies;
7. the database can operate successfully under any of the following conditions (these are ranked in order of most to least effective);
   a. collecting, indexing, editing, disseminating and loaning of materials, as well as operating the system, through one central agency or clearinghouse (identification of materials would be done regionally);
   b. identifying, collecting, indexing and loaning of materials done regionally with partial subsidization (editing and operating the central computer system would be performed centrally);
   c. all functions could be performed above in (b), but on a strictly volunteer basis (editing and operating the central computer system would be performed centrally);
8. the initial set-up and development of the database should be contracted out to a group of consultants.

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ACKNOWLEDGEMENTS

This report is a collective effort. It represents almost two years of work by seventeen graduate students and two faculty members from the Department of Educational Administration, University of Alberta. But it is also the result of the input from over 600 individuals from across Canada who took the time to respond to our questions concerning a database on multicultural and intercultural education.

Like all studies of this nature, this report has incurred a list of debts in its production. Special mention must be made of the faculty members who guided this project from start to finish. Dr. Ernest Ingram, Coordinator of the Administrative Development Program, provided invaluable advice on project management during the initial stages of the study. Dr. T. Craig Montgomerie, Research Associate Professor in the Department of Educational Administration, served as Project Director; his expertise and experience in the areas of computer technology, information management systems, and data collection and analysis provided the foundation for this study. Mrs. Deborah Dancik, Education Librarian of the University of Alberta, while being a member of the class, also served as the Associate Project Director. Mrs. Dancik's experience with educational resources and computerized bibliographic databases was instrumental in the successful completion of the project. Finally, Mr. Frank Peters, Research Associate Professor in the Department of Educational Administration, acted as the Project Manager, skillfully and sensitively managing the study and maintaining class morale. All of these individuals gave generously of their advice and wisdom, and were responsible, in large part, for the quality and comprehensiveness of this project.

Clerical support was provided by Mrs. Betty Brown from the Department of Educational Administration. Mrs. Brown ably attended to the many and varied tasks which allowed the project to proceed smoothly and efficiently.

Finally, a special word of thanks must be expressed to the many hundreds of individuals - from coast to coast - who took the time to share their thoughts concerning a national database on multicultural and intercultural education. Without their insightful comments, this report would not have been possible.

ABSTRACT

This study identified alternatives for the design, implementation and oepration of a national information management system in multicultural education resources and materials, and assessed the feasibility of implementing such a database.

The major findings of the study are:

1) there is a great deal of support for the proposed database by individuals, organizations and institutions across Canada;
2) users, in regards to preference of materials for inclusion in the database, ranked printed materials first, followed by lists of resource persons and agencies;
3) all groups indicated a preference for centralization of identification, collection, indexing and loaning of materials, except for professional librarians who preferred regional identification;
4) individual agencies exist which would be willing to perform the functions of identification, collection, indexing and loaning of materials and resources;
5) commerical database operators exist who have the capability and interest in implementing and operating the database.

The recommendations of the study are:

1) there must be a single set of standards for (a) bibliographic description and (b) for the operation of the entire computer system.
2) there must be a single authority to manage the operation of the database.
3) the database should:
   a) consist of a centralized computer system to operate the database;
   b) be developed on a central timeshared mainframe computer;
   c) be developed and operated under contract by QL Systems;
4) heritage languages should not be included in the database;
5) the database should list the titles of materials in the language of production, and include either a bilingual or English thesaurus;

6) the database should list all types of materials regardless of their format, as well as resource people and agencies;

7) the database can operate successfully under any of the following conditions (these are ranked in order of most to least effective);

   a) collecting, indexing, editing, disseminating and loaning of materials, as well as operating the system, through one central agency or clearinghouse (identification of materials would be done regionally);

   b) identifying, collecting, indexing and loaning of materials done regionally with partial subsidization (editing and operating the central computer system could be performed centrally);

   c) all functions could be performed above in (b), but on a strictly volunteer basis.

8) the initial set-up and development of the database should be contracted out to a group of consultants.

Table of Contents

ACKNOWLEDGEMENTS iii

ABSTRACT iv

PART I ESTABLISHING THE FEASIBILITY FOR A NATIONAL DATA BASE 1

1 INTRODUCTION TO THE STUDY 3

2 ESTABLISHING A PERSPECTIVE 7

3 METHODOLOGY AND PROCEDURES 11

CHARACTERISTICS OF EXISTING DATABASES 12

IDENTIFICATION OF INTEREST GROUPS 13

DETERMINING NEED, SUPPORT AND CHARACTERISTICS 15

RESPONSE TO QUESTIONNAIRES 17

PART II FINDINGS AND DISCUSSION 21

4 NEEDS ASSESSMENT 23

USER NEEDS 24

INFORMATION PROVIDER AND SYSTEM OPERATOR NEEDS 32

5 SPECIAL CONSIDERATIONS 41

CONTROL OF THE DATABASE 42

OPERATION AND MAINTENANCE OF THE DATABASE 42

CONTENT 43

IDENTIFICATION AND COLLECTION OF MATERIALS AND RESOURCES 44

INDEXING OF INFORMATION 45

LANGUAGE 47

SPECIAL MATERIALS 48

CLEARINGHOUSES 51

SUMMARY 54

6 POSSIBLE SUPPORT FOR THE PROPOSED DATABASE 55
POSSIBLE HUMAN RESOURCES TO OPERATE THE SYSTEM 55
FUNDING 58

7 POSSIBLE COMPUTER SYSTEMS 61
MICROCOMPUTER DATABASE SYSTEMS 61
CENTRALIZED MAINFRAME DATABASE SYSTEMS 75
COMMERCIAL MAINFRAME BIBLIOGRAPHIC DATABASE SYSTEMS 76
UNIVERSITY RESEARCH SYSTEMS - THE PROTOTYPE SYSTEM 81
DISTRIBUTED PROCESSING DATABASE SYSTEMS 86
SUMMARY 87

8 ALTERNATIVE ORGANIZATION AND OPERATION OF CCMIE DATABASE 89
COMPONENTS OF SCENARIOS AND POSSIBLE ALTERNATIVES FOR EACH 89
FEASIBILITY TESTING 92
SUMMARY 104

PART III RECOMMENDATIONS AND CONCLUSION 105

9 RECOMMENDATIONS 107
STANDARDS 107
CHOICE OF COMPUTER SYSTEM 108
LANGUAGE 112
DATABASE CONTENT 113
OPERATION AND IMPLEMENTATION 113
FINANCE 115

10 CONCLUSION 117

Bibliography 119

Glossary of Terms 125

Appendix 1 - Questionnaires 127

Appendix 2 - Potential Funding Agencies 167

Appendix 3 - Alternative Scenarios 173

Appendix 4 - Proposal From Infomart 181

Appendix 5 - Proposal From QL Systems 185

Appendix 6 - Prototype System Documentation 201

List of Figures

Figure		Page
1	The Prototype System	83
2	Feasibility Test	93
3	Scoring of Feasibility Test	95

List of Tables

Table		Page
1	Response Rate for Questionnaires	19
2	Materials and Resources to be Included in the Database	26
3	Current Access to Computers by Respondents	28
4	Planned Access to Computers Within One Year by Respondents	28
5	Commercial Computer Systems, Databases or Printed Indices Searched	29
6	Language in Which the Database Should be Searchable	31
7	Sample Lists of Existing Multicultural, Intercultural and Ethnic Education Resources and Materials	33
8	Existing Materials and Resources	35
9	Who Should Identify Materials for the Database?	37
10	Who Should Collect Materials for the Database?	37
11	Who Should Index Materials for the Database?	39
12	Who Should Loan Materials from the Database?	39
13	Microcomputer Bibliographic Systems	66
14	Potential Funding Agencies (National Emphasis)	169
15	Potential Funding Agencies (Provincial Emphasis)	172
16	Alternative Organization and Operation of CCMIE Database	175

PART I

ESTABLISHING THE FEASIBILIT FOR A NATIONAL DATA BASE

CHAPTER 1

INTRODUCTION TO THE STUDY

In recent years, the concept of multiculturalism has received considerable attention in Canada. It took an event like "Expo '67" to confirm to Canadians how rich this country had become. One contributing factor to this richness is the variety of backgrounds and origins of the Canadian people.

In the early 1970's, the Federal Government established a multicultural program because it believed that an appreciation of the various ethnic groups in Canada would foster national unity and combat racism. Under this program, a "plethora of conferences, workshops, folkfests, committees, and societies" (May, 1983:105) have emerged. One of the results of this activity has been the production of a tremendous volume of information on multiculturalism and interculturalism. A major challenge became organizing this volume of information and making it accessible to the public.

The Report of the Special Committee on Visible Minorities in Canadian Society (Daudlin, 1984:18) outlines the need to address this challenge:

> It appears that libraries and resource centres all over Canada contain materials which assist individuals and groups to confront racism and discrimination. These have been evaluated and appear effective in ameliorating tensions, yet little is reaching the public. It appears further that similar information and material exists in different centres in the country, but efforts to co-ordinate them have not been successful, thus depriving many of what they need to know. As one witness put it: "We frequently come across programs, publications, speakers, courses and activities related to race relations that are not widely publicized and that we stumble over by chance."

In order to investigate the possibilities of coordinating educational materials in this regard, the Canadian Council for Multicultural and Intercultural Education (CCMIE) contracted a study which would assess the need for, and feasibility of, the development of a national database on multicultural and intercultural education. Such a database would include information on resources and materials; resource and information

centres and agencies; and resource persons in multicultural, intercultural and ethnic education.

The purpose of this study is to identify alternatives for the design, implementation and operation of a national information management system in multicultural educational resources and materials, and to assess the feasibility of implementing such a database. The following nine major objectives were addressed throughout the study:

1) to determine the extent of resources and materials in Canada in multicultural and intercultural education;
2) to identify and describe appropriate existing information management systems capable of supporting a database of resources and materials, resource and information centres and agencies, or resource persons;
3) to develop a set of requirements for a national information management system in multicultural educational resources and materials;
4) to identify possible sources and amounts of funding for the development, implementation and operation of a national information management system in multicultural educational resources and materials;
5) to develop a prototype information management system which includes features of the existing systems;
6) to assess the feasibility of each of the possible systems in relation to user requirements and financial resources;
7) to recommend the information management system which best suits the needs and finances of the user group;
8) to recommend mechanisms and procedures for the design, implementation and operation of the recommended system; and
9) to report the results of the study to the CCMIE.

This report has been written with the non-specialist reader in mind. Realizing that the unitiated reader could easily become overwhelmed by undefined terminology and computer jargon, this report attempts to "de-mystify" the complex and intimidating fields of library systems and computerized information management systems. Any words not

in common use are defined in the text and in a glossary at the end of the report.

This report is divided into three major sections. The first part, "Establishing the Feasibility for a National Database", provides some information to assist the non-specialist reader in understanding the role of library systems and the potential application of a computerized information management system. In addition, the methodology and procedures used in the study are outlined.

Having described the preparatory work necessary to actually conduct the study, Part II, "Findings and Discussion", describes the responses of the two major clients of the system: the *users* and the *information providers*. These two groups are identified and described, and their responses to the questionnaires are analyzed in detail. The following chapter, "Special Considerations", examines the critical issues involved in operating a database, such as the control, content and responsibility for identifying, collecting and indexing materials with the system. Having now established the context in which the database should operate, the next question to be addressed is that of possible support for the database, including human and financial resources. Chapter 6 outlines the conditions under which various individuals and agencies would be willing to contribute manpower, as well as the criteria and potential sources of funding to develop and maintain the database. Next, the chapter entitled, "Possible Computer Systems", examines the wide range of existing computer hardware and software which may be utilized in the proposed database. In addition, the characteristics and capabilities of a prototype system are discussed. Chapter 8, "Alternative Organization and Operation of the CCMIE Database", presents a variety of scenarios which represent possible alternatives for the organization and operation of the proposed database.

The report culminates with Part III, "Recommendations and Conclusion". This section synthesizes all the information in the report and makes final recommendations concerning the feasibility of establishing a national database on multicultural and intercultural education.

CHAPTER 2

ESTABLISHING A PERSPECTIVE

Since the beginning of civilization, man has recognized the value of recording the thoughts, accomplishments, and knowledge generated by his culture. Over the centuries the resultant artifacts and documents have been collected and held by a variety of religious and secular authorities. Such repositories grew, and the need to organize the collections so that individual materials within each collection could be readily found became apparent. Since World War II, the amount of information being generated has increased exponentially; it has been suggested that by the end of this century, information will be doubling at least every ten years. This phenomenal growth in our information base has implications both for those who manage and organize information, and for those who use or consume it.

In an effort to handle this ever-expanding amount of information, increasingly complex schemes were developed to describe and catalogue materials. Cataloguing schemes became very sophisticated, but they could handle the information in a one-or two-dimensional manner only (Dancik, 1984). That is, an item could be described by author, title and several subjects, but could be retrieved by only one of these access points at a time. If a large number of items were listed under a subject, a significant amount of manual sorting was required to more narrowly focus the search. With the enormous increase in the amount of information, manual sorting became unwieldly. What was needed was a mechanism which would allow a multi-dimensional or multiple access approach to a single item. The theoretical development and practical application of computerized information management systems has made this multi-dimensional approach possible.

The early computerized systems were "program oriented", designed to process only a single task or program at a time. Thus the information, or data, had to be tailored to fit the program. For businesses and libraries, however, separate programs did not address the need for a simultaneous multi-dimensional approach to the information. In response to that need, database management or "information management systems" were developed. These systems allow multiple operations for the management, or manipulation, of data within a single program.

The standard structure of library catalogue records closely matched the structure of such databases. This made conversion of manual records to computer records fairly simple. In addition, the time required to revise, update or create an original catalogue record was greatly reduced. Information management systems allowed for the more efficient use of human resources and provided quicker and more direct access to information.

Recently, a move toward more user-oriented information management systems took place. These systems allowed an individual who may not be computer literate to perform a variety of operations, such as adding, deleting or searching for data, using everyday language.

The question arises, then, whether any information management system can fulfill the functions of collecting, recording and distributing information on materials and resources in multicultural, intercultural and ethnic education.

In selecting the most appropriate system from the large number of existing information management systems, it is important to compare their relative strengths and weaknesses. Such an investigation should address the area of database creation, availability of service, hardware, software, user training, maintenance, user procedures and aids, and cost (Blue, 1979). Additionally, with the application of computers to library functions and increasing public access to such systems, consideration must be given to the use of standardized procedures for cataloguing or indexing, the completeness of the data, the merits of a free or fixed vocabulary and the creation of a standard thesaurus. Furthermore, many bibliographic databases are remote or

removed from, the actual materials listed in them. The difficulty then arises as to how the public could actually obtain the materials listed in the database. In addition, the major issues of organizational structure, control of the system and coordination of human effort must be considered. This study discusses these questions in order to assess the feasibility of establishing and maintaining a national database in multicultural, intercultural, and ethnic education resources and materials.

CHAPTER 3

METHODOLOGY AND PROCEDURES

In order to carry out a study of such complexity and magnitude, the project began with a critical examination of the nine major objectives outlined in Chapter 1. The first step was the identification of specific research questions (i.e., "what did we need to find out?"). The next step was to determine the sources which could answer these questions: they were subsequently broadly defined as potential users of the system, experts in information management and systems, and document research and published literature.

Once the questions were identified and the data sources determined, the procedures for actually conducting the study were decided upon. The following data collection instruments were used: (a) survey questionnairies, followed by telephone and personal interviews with small groups and individuals, (b) letters to system suppliers asking for system specifications and descriptions; these were followed-up by telephone calls, (c) in-person interviews and presentations with a number of suppliers and experts, (d) observations of working systems, (e) an in-depth review of the literature and (f) the development of a prototype system to examine the potential and some of the problems of the proposed database.

Over the course of the study an extensive review of the literature was undertaken, providing background information on the nature of databases and the mechanisms for handling information, as well as general information on multicultural education. This knowledge enabled us not only to refine the research questions, but also to determine what measures were necessary to address those questions. Some of these questions led us back to the literature for a further examination of the issues and answers to such concerns as multilingual databases, the handling of audiovisual materials, coordinating a national indexing effort and information management systems.

The extensive bibliography at the end of this report lists the sources which were consulted in this study.

CHARACTERISTICS OF EXISTING DATABASES

After completing the initial literature review and after consultation with specialists working in the field of information management systems, three major types of bibliographic and resource agency databases were examined:

1) large, commercial database systems;
2) large, private research oriented database systems; and
3) microcomputer database systems.

A number of major existing commercial systems were identified. These included Lockheed Information Systems (DIALOG); Bibliographic Retrieval Systems (BRS); Canada Institute for Scientific and Technical Information (CISTI), publishers of CAN/OLE, CAN/SDI and others; the Ontario Ministry of Education, publishers of ONTERIS; University of Toronto Library Automation Systems (UTLAS); QL Systems Ltd., and INFOMART. Additional information on each of these systems was obtained from advertising brochures and published documents. Each company was asked to indicate its willingness to develop the CCMIE database, the conditions under which they would operate such a database as well as the costs and the services which would be provided. In addition, two major university information system groups were contacted and asked to provide the same information. Four commercial companies and one university group responded with proposals to operate the database. A number of microcomputer database systems representatives were interviewed by telephone to obtain descriptions of their capabilities for operating the proposed CCMIE database.

The remainder of this chapter outlines the characteristics of the interest groups who would utilize this database and describes the procedures used to select the survey sample.

METHODOLOGY AND PROCEDURES

IDENTIFICATION OF INTEREST GROUPS

Any system consists of a number of interrelated interdependent subsystems, each of which provides or receives (consumes) some goods or services from the overall system. The matching of the provision and consumption of goods and services allows the system to operate. In traditional systems theory, these subsystems are usually classified as input, operation and output. In an information system such as the proposed CCMIE database, one of the first steps necessary is to identify the goods and services involved in the input, operation and output subsystems. Once these goods and services have been defined, the individuals who provide them can be identified.

The "Input" Subsystem

The groups which would provide input to the database would be those possessing information, materials or services which they would like to have indexed in the system. A number of such groups and individuals were identified:

1) commercial publishers of multicultural, intercultural and ethnic education materials;
2) non-commercial publishers of multicultural, intercultural and ethnic education matarials (school systems, ethnic groups, provincial departments of education, etc.); and,
3) university, college, school sytem and research libraries which may already hold multicultural, intercultural and ethnic education materials.

The "Operation" Subsystem

The operators of a national database of multicultural, intercultural and ethnic education resources and materials can be divided into two interdependent groups:

1) the group which provides the services of identifying, collecting, indexing and lending materials; and,
2) the group which operates the computerized information retrieval system.

It is conceivable that both operations could be undertaken by a single group, however,

the two operations have traditionally been separated.

The following groups would have the ability and interest to carry out the functions of identifying, collecting, indexing and lending materials for the proposed database: university, college and research libraries, libraries operated by large school systems, commercial vendors of indexing services, and an "in-house" service operated by the CCMIE.

In addition, three potential operators of the information retrieval system for the database were identified: commercial database vendors, large university computer systems and an "in-house" computer system.

The "Output" Subsystem

A wide range of individuals and groups would be able to use the output from the proposed national database of multicultural, intercultural and ethnic education. These primary users of the system would include:

1) teachers and principals in school systems;
2) instructors at the postsecondary level;
3) cultural groups;
4) specialists in multicultural and intercultural education;
5) commercial publishers;
6) librarians who provide service to the above groups, including those working in public libraries; school and school system libraries; and university, college, research and other specialized libraries.

DETERMINING NEED, SUPPORT AND CHARACTERISTICS

Once the characteristics of the database and the interest groups had been identified, it was necessary to assess the stakeholders' specific needs and potential support for the database. After an examination of the groups identified under each of the input, operation and output subsystems, these interest groups were refined into the following six identifiable populations:

1) school principals;
2) school system curriculum and media directors, superintendents;
3) publishers;
4) professional librarians;
5) cultural specialists; and
6) cultural organizations.

Selection of the Sample

School principals were identified as a consumer group. A stratified random sample of principals was selected from the Canadian School Executive database of Canadian school administrators. A three way stratification, "province" by "rural-urban" by "elementary-secondary", was used. Six rural high school principals, six urban high school principals, six rural elementary school principals and six urban elementary school principals were selected from Ontario and Quebec. In the other provinces, the sample consisted of three rural high school principals, three urban high school principals, three rural elementary school principals and three urban elementary school principals. It was possible to select a total of only twenty-one principals from the two territories.

As well as being consumers of information, school systems were seen as possible providers and operators of the database. A stratified sample, again selected from The Canadian School Executive database, consisted of ten superintendents from each of Ontario and Quebec and five from each other province. Seven superintendents were selected from the two territories.

Canadian publishers who produce educational materials and a list of those who publish multicultural, intercultural and ethnic material in multiple languages was compiled from a variety of sources. Ten large and ten small publishing companies were selected from this list.

Professional libraries were divided into three major categories: university, public and specialist. Where possible, two universities, two colleges, two large urban libraries and two rural libraries were selected for each province or territory. Specialist librarians (including those in government libraries, each provincial teacher's association or union library, and each provincial school trustees' association library) were also selected; these individuals represented possible providers of input, operators and consumers.

The group of cultural specialists were considered to be both possible providers and consumers. One hundred and twenty names were randomly selected from lists provided by members of the CCMIE and The Office of the Secretary of State. In addition, 108 cultural groups were identified as potential providers, operators and consumers. This list was compiled from directories of organizations across Canada.

Lastly, since the group requesting the feasibility study was the CCMIE, its members and their alternates formed an entirely separate population. In contrast to the previous samples, all CCMIE members were surveyed because of their access to information on the state of, and interest in, multicultural, intercultural and ethnic education in their respective jurisdictions.

Assessment of Need and Support

In order to determine the interest groups needs concerning the proposed database, individual questionnaires were constructed and sent to a sample from each population.

The first major issue addressed in each questionnaire was the need for a national database. Respondents were asked, "Would a national information management system be of use to you?"

METHODOLOGY AND PROCEDURES

The second major issue related to user support. Support includes both financial and resource support, such as a willingness to loan, distribute or otherwise contribute to the functioning of such a system. Potential consumers were asked, "Would you be willing to pay for access to a database", and "Would you pay to obtain materials or copies of materials?" Potential suppliers were questioned as to whether they would be willing to pay to have materials included in a system, and if they felt a fee should be charged for access to such information. In addition, respondents were asked if they would contribute resource support to a national database.

Respondents were also asked to identify any computer equipment to which they had current or planned access. Furthermore, in order to assess the nature of data to be included in the database, respondents were asked to identify existing materials and resources which they felt should be included in the system, and the form and frequency with which data should be made available to consumers. Members of the potential operation groups were asked questions concerning the identifying, collecting, indexing and distributing of materials.

All groups were also queried as to the language(s) in which the database should be constructed: French, English and heritage languages.

Copies of the questionnaires which were sent to each group have been included as Appendix 1.

RESPONSE TO QUESTIONNAIRES

A total of 637 questionnaires were distributed to the selected interest groups and individuals. The questionnaires were translated into French and sent primarily to individuals and agencies in Quebec; these had a lower rate of return than the questionnaires written in English. There are two possible explanations for this: (1) the translation of questionnaires delayed their mailing by several weeks, and the return date for these questionnaires was shorter than for their English equivalent; (2) we lacked

sufficient expertise in "Quebec" French, especially the ability to translate the technical vocabulary involved in the study. Several of the French respondents noted such problems in their responses, and it may be that French respondents who did not reply simply objected more strongly to the translation.

Table 1 outlines the number and percentage of questionnaires which were returned. The total response rate was 73.4%, which is well above that expected for a sample of this type. Responses to each question are tabulated on the questionnaires in Appendix 1. These responses provide much of the raw data for the "Findings and Discussion" section of this document.

Table 1

Response Rate for Questionnaires

Respondent Group	Number Sent	Number Returned on First Pass	Number Returned after Reminder	Number Returned as Invalid[1]	Valid Response Return Rate
Principals	165	98	29	1	77.4%
Superintendents	67	41	10	0	76.1%
Librarians	130	74	23	3	76.4%
Publishers	22	12	3	0	68.2%
Cultural / Ethnic Groups	108	35	26	8	61.0%
Cultural / Ethnic Specialists	120	81	9	0	75.0%
CCMIE Members or Alternates	25	10	8	0	72.0%
Total	637	351	108	12	73.4%

[1] Invalid questionnaires included those returned without being delivered and those returned where the respondent refused to complete the questionnaire.

PART II

FINDINGS AND DISCUSSION

CHAPTER 4

NEEDS ASSESSMENT

In order for this project to be successful, careful account was taken of the opinions, abilities and needs of the people who will actually use the database. There are a number of reasons for this: first, if the users of the system are not consulted as to their needs and wants, there is no guarantee that the system devised will fulfill their requirements. Secondly, soliciting the input of interest groups will make them more receptive to, and supportive of, the final database.

The stakeholders in a national database of multicultural, intercultural and ethnic education resources and materials would consist of two broad groups: *users* or *consumers* of information, and *providers* of information (including operators of the system). In some situations, both groups may be represented by the same person, as in the case of a professional librarian who indexes information to be included in the database, but who also searches the database for information for a client. While the members of these two groups sometimes overlap, their needs, skills and access to computers are quite independent; hence, they will be discussed separately.

The following chapter examines the characteristics of the potential users and providers of information. User groups are identified and described, and their responses to questions dealing with potential use of the database, current and planned access to computers, preferred languages, etc. are analyzed in detail. Similarly, the needs and characteristics of the information providers are examined, taking into account factors such as existing resources and materials, and provision for identifying, collecting and loaning materials. The responses from these interest groups form a major foundation on which the final recommendations are based.

USER NEEDS

The proposed database has two levels of users: non-specialists and professionals. Non-specialist users usually require information for research or teaching purposes; they are generally not experienced in finding information with either a computerized or a non-computerized system. Their knowledge is quite often limited to the use of a card catalog in a library. School principals, members of cultural and ethnic groups, multicultural specialists and members of the CCMIE were considered to be representative examples of this type of user.

The second kind of user is the professional information specialist, (for example, a professional librarian in a research library or a school system level library). Such information specialists procure information upon request from the eventual user of the information or they assist the user in obtaining information. Librarians and superintendent or school system representatives are included in this group.[1]

Potential Use of the Proposed Database

A prime concern of the CCMIE is that any proposed database must serve the specific needs of clients throughout Canada. In order to assess the usefulness of and support for a national database, questionnaires were sent to individuals, organizations and institutions across Canada. Responses were received from every province and territory; all indicated that they were supportive of the proposed database.

When asked if a national database on multicultural, intercultural and ethnic education resources and materials would be useful to them or to members of their groups or schools, almost 78% of respondents answered that it would be useful.[2] Almost 71% of the information specialists also indicated that the database would be

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[1] Some explanation may be necessary to justify the inclusion of the superintendents' or school system representatives' responses in this group. When a questionnaire was sent to a superintendent, he was asked to pass it on to his curriculum and media director (if such a position existed). Analysis of the written comments on the questionnaires returned from this group indicated that many were from information specialists, rather than from the end consumers of the information.

[2] It should be noted that members of the CCMIE were not asked this question and therefore are not included in this calculation; it was assumed that if the CCMIE were commissioning this study, they would naturally perceive the database to be useful.

useful to their clients.

Materials and Resources to be Included in the Database

One of the key questions in this study concerned the types of materials and resources which should be included in the proposed database. All respondents were given a list of the possible types of materials or resources (e.g., print materials, films, artifacts) and were asked to indicate those which they felt should be included in the database. Table 2 shows the number of respondents indicating support for each type of material or resource. The resources and materials are listed in order from most preferred to least preferred. As can be seen from Table 2, print materials rank the highest, followed by the names of resource persons. This latter finding is extremely important because a database which maintains the names of people has a completely different structure from one which maintains standard bibliographic descriptions (for example, books or periodicals). Table 2 also illustrates the high number of users preferring the inclusion of non-print materials (for example photographs, videotapes, audiotapes and artifacts). The inclusion of non-print materials has great implications for the database in the area of indexing.[3]

Non-professional and specialist users differed little in their specifications of materials and resources that should be included in the database. Both groups indicated the need to include lists of resource persons and non-print materials.

Access to Computers and Computerized Database

Mareau (1978:243) found that the majority of users employ someone else to access the information contained in a computerized database; in fact, only 5% actually access the database themselves. He also found that, all other things being equal, the price per reference found by on-line search is cheaper than that found by manual search. Having established that using a computerized database is cheaper than completing a manual

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[3] A description of the special problems involved in indexing non-print materials is included in Chapter 5, "Special Considerations".

Table 2

Materials and Resources to be Included in the Database

Material or Resource	Principal (n=82)	Superintendent (n=41)	Librarian (n=62)	Publisher (n=09)	Cultural Group (n=47)	Cultural Specialist (n=82)	CCMIE Member (n=18)	Total (n=341)
Printed Materials	81 (98.8%)	39 (95.1%)	60 (96.8%)	8 (88.9%)	46 (97.9%)	80 (97.6%)	18 (100%)	332 (97.4%)
Names of Resource People and Agencies	67 (81.7%)	34 (82.9%)	54 (87.1%)	0 (0.0%)	44 (93.6%)	72 (87.8%)	16 (88.9%)	287 (84.2%)
Film or Filmstrips	76 (92.7%)	34 (82.9%)	41 (66.1%)	2 (22.2%)	30 (63.8%)	63 (76.8%)	15 (83.3%)	261 (76.5%)
Curriculum Materials	65 (79.3%)	34 (82.9%)	37 (59.9%)	1 (11.1%)	31 (66.0%)	67 (81.7%)	16 (88.9%)	251 (73.6%)
Videotape or Videodisc	62 (75.6%)	35 (85.4%)	40 (64.5%)	3 (33.3%)	32 (68.1%)	52 (63.4%)	14 (77.8%)	238 (69.8%)
Slides	50 (61.0%)	27 (65.9%)	38 (61.3%)	4 (44.4%)	30 (63.8%)	51 (62.2%)	10 (55.6%)	210 (61.6%)
Photographs	48 (58.5%)	21 (51.2%)	34 (54.8%)	1 (11.1%)	25 (53.2%)	42 (51.2%)	8 (44.4%)	179 (52.5%)
Computer Diskettes	50 (61.0%)	28 (68.3%)	35 (56.5%)	0 (0.0%)	16 (34.0%)	30 (36.6%)	12 (66.7%)	171 (50.1%)
Artifacts	50 (61.0%)	19 (46.3%)	23 (37.1%)	1 (11.1%)	22 (46.8%)	28 (34.1%)	4 (22.2%)	147 (43.1%)
Audiotape or Records	31 (37.8%)	14 (34.1%)	35 (56.5%)	1 (11.1%)	18 (38.3%)	33 (40.2%)	11 (61.1%)	143 (41.9%)
Microform	8 (9.8%)	6 (14.6%)	42 (67.7%)	1 (11.1%)	8 (17.0%)	21 (25.6%)	6 (33.3%)	92 (27.0%)

Note:
Percentages indicate the percentage of the total number of the group who indicated that any kind of material should be included in the database.

search, the next step was to determine whether the potential users of the proposed database had access to computer equipment and whether they currently searched computerized databases.

Tables 3 and 4 illustrate the types of computer systems to which respondents have current or planned access. As can be seen in these two tables, the majority of potential users (with the exception of the cultural groups) either utilize a computer now, or plan to access one in the near future.

In order to determine whether principals, superintendents, librarians and CCMIE members currently access computerized databases, each was given a list of computerized information systems or databases applicable to education, and was asked to identify those they currently searched. For comparison, the Canadian Education Index, which is not searchable by computer, was included in the list. Table 5 shows the number in each group indicating they searched these databases or systems. As can be seen from this table, librarians are the only significant users of on-line computerized information systems (CAN/OLE, Dialog, BRS and SDC). It is also notable that the number searching Resources in Education and Current Index to Journals in Education are similar to the number searching the Canadian Education Index. Since these computerized databases are also available in printed form, it may be that the respondents are searching the printed rather than the on-line versions.

The fact that principals, superintendents and CCMIE members do not utilize computerized methods for accessing information has implications for the proposed database. If the database were available on-line only, it is highly unlikely that these individuals (librarians being the exception) would access the information it contained. In order for this to happen, principals, superintendents and CCMIE members would have to be willing to change their present methods of finding information.

Method of Producing and Disseminating Information From the Database

Respondents were asked to indicate their preference regarding the format in which information should be available: on-line, a printed index or a letter of request to a

Table 3

Current Access to Computers by Respondents

Access	Principal (n=77)	Superintendent (n=38)	Librarian (n=57)	Cultural Group (n=45)	Cultural Specialist (n=82)	Total (n=299)
No Access	25 (32.5%)	3 (7.8%)	17 (29.8%)	34 (75.6%)	32 (39%)	111 (37.1%)
Microcomputer	57 (74.0%)	37 (97.4%)	24 (42.1%)	10 (22.2%)	31 (37.8%)	159 (53.2%)
Mini or Mainframe Computer	7 (9%)	10 (26.3%)	22 (38.6%)	6 (13.3%)	22 (26.9%)	67 (22.4%)
Microcomputer or Terminal with a Telephone Coupler	3 (3.8%)	12 (31.6%)	26 (45.6%)	5 (11.1%)	20 (24.3%)	66 (22.1%)
On-line Digital Communications Network	1 (1.2%)	2 (5.2%)	24 (42.1%)	3 (6.6%)	11 (13.4%)	41 (13.7%)

Table 4

Planned Access to Computers Within One Year by Respondents

Access	Principal (n=77)	Superintendent (n=38)	Librarian (n=57)	Cultural Group (n=45)	Cultural Specialist (n=82)	Total (n=299)
No Access	51 (66.2%)	19 (50%)	33 (57.9%)	36 (80%)	48 (58.5%)	187 (62.5%)
Microcomputer	9 (11.7%)	5 (13.2%)	9 (15.8%)	2 (4.4%)	5 (6.1%)	30 (10%)
Mini or Mainframe Computer	0 (0%)	4 (10.5%)	9 (15.8%)	3 (6.7%)	8 (9.8%)	24 (8%)
Microcomputer or Terminal with a Telephone Coupler	5 (6.5%)	9 (23.7%)	6 (10.5%)	2 (4.4%)	8 (9.8%)	30 (10%)
On-line Digital Communications Network	2 (2.6%)	1 (2.6%)	8 (14%)	0 (0%)	4 (4.9%)	15 (5%)

Table 5

Commercial Computer Systems, Databases or Printed Indices Searched

Access	Principal	Superintendent	Librarian	CCMIE Members	Total
Canadian Education Index	17 (23.2%)	24 (75%)	33 (67.3%)	10 (76.9%)	84 (50.3%)
Current Index to Journals in Education	24 (31.6%)	25 (71.4%)	31 (59.6%)	14 (93.3%)	94 (52.8%)
Resources in Education	26 (34.6%)	16 (51.6%)	34 (66.6%)	11 (31.6%)	87 (51.2%)
ONTERIS	0 (0%)	6 (23%)	18 (38.2%)	3 (37.5%)	27 (18.7%)
SOCSCAN	0 (0%)	0 (0%)	5 (13.2%)	0 (0%)	5 (3.9%)
CAN/OLE	0 (0%)	0 (0%)	19 (43.2%)	0 (0%)	19 (14%)
Dialog	1 (1.6%)	1 (4.5%)	31 (62%)	1 (16.7%)	34 (24.1%)
SDC	0 (0%)	0 (0%)	12 (28.6%)	0 (0%)	12 (9%)
Bibliographic Retrieval Systems	0 (0%)	2 (8.3%)	14 (33.3%)	0 (0%)	16 (11.9%)

central information centre. For each respondent, the first choice was given a weight of 3, the second 2, and the third a weight of 1. All groups (except librarians) indicated that their first choice was the production of a printed index, their second preference was by a letter of request to a central agency, and their last choice through on-line access. Librarians were quite different, their first preference being on-line access, their second a printed index, and their last choice a letter of request to a central agency. This difference can be attributed to the degree of familiarity with on-line systems shown by librarians.

When the users were asked how often a printed index should be produced, semi-annual or annual production seemed equally preferred by all groups. When asked if they would pay a fee for the printed index, 75% indicated that they would, while 25% indicated that they would not.

Language of the Database

Respondents were asked, "Should information in the database be searchable in English, French and/or the heritage language?" Table 6 shows the response rate for each of the three languages. It is interesting to note that 99% of the 325 people indicated that the database should be searchable in English. Only 233 persons responded to the question as to whether the database should be searchable in French, and of these 63% indicated "yes". To the question of whether the database should be searchable in the language of production of each article, only 199 persons responded to this question (of which 50% responded "yes"). This tremendous drop in the number of responses to the question of French and heritage language inclusion leaves interpretation of the percentage figures open to question.

Summary of User Needs

In summary, it is apparent that there is a great deal of support for the proposed database. The specialist and non-professional users ranked print materials as most important to be included in the database, followed by lists of resource persons and

Table 6

Language in Which the Database Should be Searchable

Database Searchable in:	Principal	Superintendent	Librarian	Cultural Group	Cultural Specialist	CCMIE Member	Total
English							
Yes (frequency)	80	40	61	46	81	14	332
Yes (percent)	(98.8%)	(100%)	(100%)	(100%)	(100%)	(87.5%)	(99%)
No (frequency)	1	0	0	0	0	2	3
No (percent)	(1.2%)	(0%)	(0%)	(0%)	(0%)	(12.5%)	(1%)
French							
Yes (frequency)	25	32	46	12	19	13	147
Yes (percent)	(44.6%)	(91.4%)	(88.5%)	(48%)	(38.8%)	(81.3%)	(63.1%)
No (frequency)	31	3	6	13	30	3	3
No (percent)	(55.4%)	(8.6%)	(11.5%)	(52%)	(61.2%)	(18.8%)	(6.9%)
Language of Production							
Yes (frequency)	8	13	26	22	19	12	100
Yes (percent)	(22.2%)	(48.1%)	(54.2%)	(75.8%)	(42.2%)	(85.7%)	(50.3%)
No (frequency)	28	14	22	7	26	2	99
No (percent)	(77.8%)	(51.9%)	(45.8%)	(24.1%)	(57.8%)	(14.3%)	(49.7%)

agencies. The potential users of the database have some access to computer facilities but, other than the librarians, do not access information from computerized databases. (in fact, there is some question as to whether potential users even use all the resources that currently exist: they are probably unaware of databases which are currently available). Non-specialist users indicated that they would prefer a semi-annual or annual printed index, while the information specialists wanted on-line access to the database. There is no question that the major language of production should be English, but there is some support for the use of French and the language in which the document was produced.

INFORMATION PROVIDER AND SYSTEM OPERATOR NEEDS

Up to this point, we have been describing a national database on multicultural, intercultural and ethnic education resources and materials in terms of the "users" of the information. In this section, we examine the "providers" within the system, including the people who add new information to the database, update information, remove old information and operate the database. We will examine the questions regarding the kinds of materials that exist and the best method of assuring that these materials can be made available to potential users.

Existing Resources and Materials

In order to estimate the number and types of materials in multicultural, intercultural and ethnic education in Canada, members of the CCMIE were asked to send copies of materials which they felt should be indexed in the database. A variety of different materials were received, the majority being of a traditional printed nature. Among the materials received were a number of bibliographies of multicultural, intercultural and ethnic education materials and lists of resource persons and agencies. These lists and bibliographies may give some sense of the number and types of materials which might form the initial database. Table 7 shows the number and types of material identified in

Table 7

Sample Lists of Existing Multicultural, Intercultural and Ethnic Education Resources and Materials

Title / Author	Region	Type of Material or Resource	Approximate Number of Individual Entries
Resource List for a Multicultural Society (Maxwell et. al., 1976)	Ontario	Print & Media	2200
Multiculturalism Film and Video Catalogue (Canadian Film Institute, 1982)	National	Film & Video	800+
Heritage Language Study (Multicultural Council of Saskatchewan, 1983)	Saskatchewan	Printed Materials	250
		Resource People and Agencies	650
A Preliminary List of Canadian Materials for Multicultural (Social Studies) Courses (Martynowych, 1979)	Manitoba	Print, Audio, Film, Video	400+

each of the bibliographies or lists. While it is difficult to estimate what the initial number of entries in the proposed database might be, it is not unreasonable to extrapolate that there might be over 5000 materials and 5000 resource persons and agencies.

In order to estimate tha amount of print material which might be added to the database each year, a search of the Alberta Education Index (AEI) was undertaken. The AEI is indexed according to the standards of the Canadian Education Index (CEI). While terms particular to multicultural, intercultural and ethnic education are not well represented in the CEI thesaurus, fourteen terms were found which covered much of the area. A search of the AEI for the period 1980-1983 (a total of 5484 titles) on these fourteen terms resulted in 151 titles. The AEI is a contributor to the CEI. CEI adds about 7,600 new titles per year (Davis, 1984). If the proportion of multicultural, intercultural and ethnic education material was the same for the total database as for Alberta, this would equate to approximately 850 new print items per year. It should be noted that AEI and CEI index print materials only (e.g., no audiovisual,) and do not index juvenile materials. Audiovisual materials and juvenile materials would probably form a significant proportion of the CCMIE database.

Table 2 illustrated the kinds of resources and materials which potential users would like to have included in the database. Principals, superintendents, librarians, cultural groups and specialists were asked the parallel question, "What kinds of resources and materials do you already have which might be included in the database?". Table 8 tabulates the results of this question in order of preference. Printed materials are the most common; this is not surprising in light of the findings in Table 2, which revealed that print materials were the most commonly held. However, when we examine other kinds of materials, we find that there is a discrepancy between what people would *prefer* to see included in the proposed database and what they themselves currently *hold*. While only 40% of respondents currently maintain lists of resource persons and agencies, over 80% of the respondents indicated that such lists would be useful to them. Cultural specialists, members of cultural groups and members of the CCMIE were also asked, "Would you let your name or the name of your

Table 8

Existing Materials and Resources

Material or Resource	Principal (n=19)	Superintendent (n=26)	Librarian (n=46)	Cultural Group (n=37)	Cultural Specialist (n=77)	Total (n=200)
Printed Materials	17 (89.5%)	26 (100%)	46 (100%)	31 (83.8%)	69 (95.8%)	189 (94.5%)
Names of Resource People and Agencies	4 (21.1%)	6 (23.1%)	20 (43.5%)	20 (54.1%)	30 (41.7%)	80 (40.0%)
Film or Filmstrips	45 (26.3%)	10 (38.5%)	20 (43.5%)	10 (27.0%)	19 (26.4%)	64 (32.0%)
Curriculum Materials	4 (21.1%)	16 (61.5%)	21 (45.7%)	10 (27.0%)	41 (56.9%)	92 (46.0%)
Videotape or Videodisc	4 (21.1%)	8 (30.8%)	11 (23.9%)	10 (27.0%)	1546 (20.8%)	48 (24.0%)
Slides	6 (31.6%)	14 (53.8%)	14 (30.4%)	11 (29.7%)	19 (26.4)	64 (32.0%)
Photographs	7 (36.8%)	8 (30.8%)	10 (21.7%)	16 (43.2%)	15 (20.8%)	56 (28.0%)
Computer Diskettes	1 (5.3%)	1 (3.8%)	4 (8.7%)	2 (5.4%)	3 (4.2%)	11 (5.5%)
Artifacts	5 (26.3%)	8 (30.8%)	3 (6.5%)	10 (27.0%)	9 (12.5%)	35 (17.5%)
Audiotape or Records	1 (5.3%)	5 (19.2%)	11 (23.9%)	5 (13.5%)	10 (13.9%)	32 (16.0%)
Microform	0 (0%)	2 (7.7%)	15 (32.6%)	2 (5.4%)	0 (0%)	19 (9.5%)

Note:

Percentages indicate the percentage of the total number of the group who indicated that they currently hold any kind of material.

group be included in a list of resource people?". There was a very positive response to this question: of those who answered the question, 95% of the cultural specialists, 96% of the cultural groups and 94% of the CCMIE members agreed to let their names or the names of their groups be listed.

Identification of Resources and Materials for Inclusion in the Database

The information specialist group (librarians and superintendents) and members of the CCMIE were asked to priorize who they felt should identify materials and resources for the database: individuals and individual agencies; a number of regional agencies; or a central agency. For each respondent, the first choice was again given a weight of 3, the second 2, and the third a weight of 1. As can be seen in Table 9, not all groups preferred the same alternatives. The highest weighted average is the most preferred choice. The superintendents and CCMIE members preferred identification by a single central agency, while librarians preferred identification by regional agencies. This difference may be due to professional librarians having had experience with the problems of identifying non-commercially published material which may be used in a particular area, but which has been produced in some other locality. All in all, regional agencies were the most highly ranked: they were the first choice of a majority of the librarians and the second choice of over 50% of the respondents.

Collection of Materials Identified in the Database

Superintendents, librarians and CCMIE members were all asked, "Who should collect the materials and resources for inclusion in the database?" Collection is defined as the acquisition, through purchase or donation, of the identified resources and materials. Again, the choices were assigned numerical values of 3, 2, and 1, and a weighted average was calculated. Table 10 shows that the first preference for the superintendents and CCMIE members was collection by a central agency, the second preference for collection by regional agencies and the third preference for collection by individuals or individual agencies. Librarians had a slightly higher preference for

Table 9

Who Should Identify Materials for the Database?

Access	Superintendent	Librarian	CCMIE Members	Total
Individuals or Individual Agencies				
Ranked First	12	16	4	32
Ranked Second	3	11	2	16
Ranked Third	14	21	6	41
Weighted Average	1.93	1.90	1.83	1.90
Regional Agencies				
Ranked First	8	24	5	37
Ranked Second	21	24	8	53
Ranked Third	2	4	0	6
Weighted Average	2.19	2.38	2.38	2.32
One Central Agency				
Ranked First	20	18	9	47
Ranked Second	2	13	0	15
Ranked Third	8	21	4	33
Weighted Average	2.40	1.94	2.38	2.15

Table 10

Who Should Collect Materials for the Database?

Access	Superintendent	Librarian	CCMIE Members	Total
Individuals or Individual Agencies				
Ranked First	8	9	3	20
Ranked Second	5	4	1	10
Ranked Third	14	34	9	57
Weighted Average	1.77	1.46	1.54	1.57
Regional Agencies				
Ranked First	6	20	6	32
Ranked Second	21	31	7	59
Ranked Third	3	2	0	5
Weighted Average	2.17	2.33	2.46	2.28
One Central Agency				
Ranked First	26	29	10	65
Ranked Second	2	15	3	20
Ranked Third	9	12	2	23
Weighted Average	2.45	2.30	2.53	2.48

collection by regional agencies than by a central agency.

Indexing of Materials for Inclusion in the Database

Superintendents, librarians and CCMIE members were asked, "Who should index the materials for inclusion in the database?" Indexing is identified as the process whereby collected resources and materials are described or listed.[4] The respondents were asked to priorize the three alternatives of individuals or individual agencies, regional agencies and a central agency. Their choices were assigned numerical values, and a weighted average was determined. Table 11 shows that the first preference for every group was indexing by a central agency, the second preference for indexing by regional agencies and the third preference for indexing by individuals or individual agencies.

Loaning of Materials

Superintendents, librarians and CCMIE members were asked, "Who should loan materials from the database?"; a weighted average for the three alternatives was calculated. Table 12 shows that the first preference for every group was loaning by a central agency, the second preference for regional agencies and the third preference for individuals or individual agencies.

Summary of Information Provider and System Operator Needs

When considering the kinds of materials that exist and the best methods of assuring the availability of these to potential users, the responses from potential providers of information seem fairly consistent. Printed materials were the most common form of existing materials. Although relatively few respondents currently maintain lists of resource persons or agencies, the vast majority of respondents would like to see such a list included in the database (and would be willing to let their own name or the name of the group be placed on the list. Identification by regional agencies was the

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[4] For a more detailed description of indexing, see Chapter 5, "Special Considerations".

Table 11

Who Should Index Materials for the Database?

Access	Superintendent	Librarian	CCMIE Members	Total
Individuals or Individual Agencies				
Ranked First	2	3	2	7
Ranked Second	1	3	1	5
Ranked Third	22	38	7	67
Weighted Average	1.2	1.23	1.5	1.24
Regional Agencies				
Ranked First	3	12	3	18
Ranked Second	23	39	7	69
Ranked Third	1	1	0	2
Weighted Average	2.07	2.21	2.3	2.18
One Central Agency				
Ranked First	35	44	12	91
Ranked Second	2	7	1	10
Ranked Third	2	6	2	10
Weighted Average	2.84	2.66	2.6	2.73

Table 12

Who Should Loan Materials from the Database?

Access	Superintendent	Librarian	CCMIE Members	Total
Individuals or Individual Agencies				
Ranked First	1	12	3	16
Ranked Second	1	2	1	4
Ranked Third	23	34	10	67
Weighted Average	1.12	1.54	1.5	1.4190
Regional Agencies				
Ranked First	9	17	8	34
Ranked Second	22	29	4	55
Ranked Third	0	5	0	5
Weighted Average	2.29	2.23	2.67	2.31
One Central Agency				
Ranked First	30	30	7	67
Ranked Second	6	19	6	31
Ranked Third	1	8	1	10
Weighted Average	2.78	2.38	2.43	2.53

most preferred means of determining resources that actually exist. For the activities of collecting, indexing and loaning of materials contained in the database, a central agency was the most preferred choice, regional agencies the second choice, and individuals or individual agencies the least preferred alternative.

CHAPTER 5

SPECIAL CONSIDERATIONS

Responses to the questions regarding user and provider needs (outlined previously in Chapter 4, "Needs Assessment") indicate that there is strong support for a national database on multicultural, intercultural and ethnic education materials and resources. Responses also indicate fairly consistent preferences in regards to who should accomplish the identification, collection, indexing and loaning functions involved with such a database.

There still remains, however, some relatively important issues that need to be considered when contemplating the establishment of a database such as the one proposed. Some of these questions include:

1) "How can coordination and access best be accomplished?"
2) "What are the major considerations and issues that must be addressed?"

With rapid developments in computer technology and the public's increasing awareness and expectations of computers, most individuals would look to high technology for answers to these questions. The capability of utilizing numerous databases from anywhere across the country already exists. Large and small computer systems can handle many types of data; we can "talk" system-to-system or individual-to-system. Thus we already have a number of computer systems to utilize in developing a national database; we need only to assess which of these systems best meets the requirements of the stakeholder groups. In addition to considering these issues, the following chapter presents considerations such as control, operation and maintenance of the database, including further discussion of identification, collecting and indexing activities. The concept of clearinghouse is also elaborated upon.

CONTROL OF THE DATABASE

The larger and more costly issues that must be addressed include the organizational structure and coordination of human effort necessary to establish and operate a national project such as this. The literature is filled with statements on the necessity of a central authority that is responsible for the management of the computer system or database (Segal, 1980; Ironside, 1971). No organization or business runs effectively with multiple presidents or chief administrators, and so it is with any database or computer system. In a database, this central control may be fairly weak, establishing some basic rules for those contributing data, and editing and producing the final print-out. Alternately, the central authority may be stronger, establishing all rules of operation and performing most of the functions itself. For a national multicultural database, the CCMIE could (with addition of an editor) form the central authority. Other possibilities might include a governing board consisting of several CCMIE members, regional contributors to the database and an editor or chief of production, or perhaps a staff employed for the purpose of operating the database (the "clearinghouse" concept) in consultation with CCMIE.

OPERATION AND MAINTENANCE OF THE DATABASE

The first responsibility of this central authority would be to establish the parameters of the database and the rules of operation. These activities must be done carefully and with forethought since the decisions made at this point will (a) affect the overall accuracy and usefulness of the database, (b) determine the potential audience and thereby affect the amount of use the database receives, and (c) affect the manpower, materials and systems costs. Over the last few years, a number of databases have reached the "drawing board" but proceeded no further because the demands of coordinating and mobilizing the human resources could not be met. Committment from those contributing time and effort to maintain the database is also

essential, especially if any part of the effort is to be volunteer. Coordinating volunteer agencies on a national level can be difficult to initiate and even more difficult to maintain, especially when the volunteers' own fiscal concerns threaten their committment.

CONTENT

The first question to be addressed (and one that will influence the solutions to later issues) concerns the nature of the materials to be included in the database. Should a multicultural education database be comprehensive? Should it include information on audiovisual materials as well as print materials? Should lists of resource people and agencies be included? Including print materials in a database is quite straight forward, and most bibliographic databases list print materials almost exclusively. The inclusion of audiovisual materials (kits, videotapes, diskettes, artifacts, etc.), however, complicates the indexing and loaning processes considerably.[5] The inclusion of lists of resource persons in a database complicates matters even more. Two major issues need to be considered when maintaining a database containing lists of resource persons: (a) it would unethical to list a person without his permission and his approval regarding the information that is included about him, and (b) addresses, telephone numbers, and the person's availability are all subject to change. In order to make the database accurate, each entry must be frequently updated. Unfortunately, this is time consuming and potentially costly.[6]

Clear definitions are needed so that contributors to, or users of, the database understand the scope of the subject content. Questions that need to be considered include: 1) what, exactly, is "multicultural", "ethnic" and "intercultural" material?

2) does it include material on a single cultural group in addition to material

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[5] See "Indexing" p. 38.

[6] A Canadian database that includes lists of resource persons does exist. It is called the Canadian Register Of Research And Researchers In The Social Sciences and was developed by the University of Western Ontario. Currently it lists over 8,500 social scientists and is updated bi-annually. The costs of developing and maintaining the Register were not available to the authors.

on several groups?

3) should materials that discuss topics generally (e.g., a philosophical discussion of discrimination of a particular group) be included?
4) should only juvenile material and that relating to teaching be included?
5) should basic adult education material be part of the database?
6) should material written or published outside Canada be included if it qualifies in the other categories?
7) will materials written in any language be accepted for inclusion? In French or English? In English only? (The consideration of language(s) relates not only to audience preference but also to how it will actually be handled in the database.)

IDENTIFICATION AND COLLECTION OF MATERIALS AND RESOURCES

The next major decisions to be considered by the central authority involve the activities of identification, collection, indexing and loaning (the mechanisms for providing the data in this bibliographic database).

The first activity, identification of materials and people for possible inclusion in the database, determines the resources that actually exist. This is usually a very simple activity, particularly for materials produced by regular commercial publishers. However, multicultural and intercultural materials which are produced by cultural groups, government or university departments, or lists of individuals specializing in the multicultural area (to list only a few possibilities) are not made for commercial sale, and thus are very difficult to identify. They are often not generally advertised and further, they are produced in small quantities for a limited audience. Compiling lists of resource people is even more difficult, especially if an individual has not published or worked extensively in the field.

SPECIAL CONSIDERATIONS

Once the materials have been identified, they must be collected. To do this, agencies or individuals must buy (or acquire through donation) those items that seem consistent with the guidelines established by the central authority. This activity costs money. The price of periodicals, books and audiovisual materials will be an on-going expense in the operation of the database -- an expense which increases yearly.

The main reason that materials are collected is so that they can be indexed and possibly loaned. Collecting materials does not automatically imply the existence of a single agency or clearinghouse for this purpose. Many organizations (e.g., libraries, school divisions) might agree to perform this function, contribute their indexing to the database and then loaning their materials when asked. But whether the collecting is centralized or dispersed, supported by special funding through the CCMIE or purchased through the funds of each contributing organization, collecting inevitably involves the expenditure of money. Fiscal constraints on either CCMIE funding or the in-house budgets of contributing organizations will directly affect the amount of material that can be acquired; this, in turn, will determine the completeness and scope of the database.

INDEXING OF INFORMATION

Indexing is the fundamental link between the existence of material and resource people, and the database itself (Becker, 1974:228). The database will not contain the actual text or content of the material but rather a description or listing of the material. Indexing provides this description and can only be done by referring to the physical object (thus the need for collecting). Indexing can have three components: (a) the bibliographic description (i.e., author, title, publisher, publication date, etc.); (b) the analysis of the subject content of an item; and (c) the abstract (i.e., a brief summary or evaluation of the content of an item).

A database is only as good (and therefore, as useable) as the data that goes into it. Records must be clean, consistent in format and free of typographical errors.

Even the most accomplished searcher will not be able to extract all the desired information if the records are not clean. Of paramount importance to computerized databases is the existence of definite standards and rules for indexing, as well as strict control exercised by an editor over what is entered into the system.

There are some generally accepted rules regarding indexing practice;[7] there is also general international agreement on standard bibliographic description (i.e., the International Standard Bibliographic Data or ISBD). These rules and standards provide consistency and a simplified format that contribute to clear information in any database and allow a searcher or user of a database to easily identify the material he needs. Given that the purpose of a database is to disseminate information in as understandable a manner as possible to a wide audience, the use of generally accepted rules and standards is essential.

Within these general rules there are additional considerations, the first of which is to determine whether a *fixed vocabulary* or a *free text* approach will be used in the subject analysis. In using free text, an indexer, once he has assessed the item in hand, can apply whatever terms as descriptors or subject headings that he deems appropriate. The terms may be taken from the text or title of the item, or they may be selected from any list of words which the indexer chooses. At first look, this option seems attractive because the terms can very clearly reflect the nature of the document. However, most database creators reject this approach because of its inconsistency: the searcher has to anticipate every possible term under which his subject might appear. Further, since there is no standard definition for a term, it may be applied to a variety of subjects, frustrating the searcher who is interested in only one of those subjects. On the other hand, a fixed or controlled vocabulary implies that the terms have selected definitions; this avoids multiple interpretations of one term and the scattering of related subjects under different headings. A fixed vocabulary involves the selection or development of a thesaurus of terms that accurately reflects the scope of subjects in the database. A thesaurus must be dynamic (able to adapt to

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[7] There may be some confusion over the meaning of the terms cataloguing and indexing. Cataloguing usually implies a very detailed bibliographic description of an item but the principles of analysis used in indexing and cataloguing are identical and for our purposes the terms will be synonymous

the emergence of new vocabulary) yet it must also be accurate, with definitions and terminology that remain constant over time.

Since the terms in a thesaurus are usually applied to "things" rather than people, careful consideration must be given to the way in which a person's expertise would be listed in the multicultural database. Bibliographic description is not suitable to describe human resources; a parallel tool would have to be developed.

In developing a prototype system for this study (as described in Chapter 7), standard bibliographic description was used. The challenge was to locate an established thesaurus which suited multicultural and ethnic materials. The Thesaurus of ERIC Descriptors has become the standard thesaurus in education. However, it does not provide the necessary level of detailed description for ethnic materials. There are two major thesasuri within the Human Relations Files (HRAF): Outline of World Cultures and Outline of Cultural Materials. The temptation to develop a new thesaurus with the prototype system was resisted: such an endeavour would require immense expertise and time, since developing a thesaurus is equivalent to compiling a dictionary.

LANGUAGE

The HRAF descriptors provide a good subject vocabulary but, unfortunately, they are entirely in English. Establishing a database that contains more than one language complicates some of the issues discussed above and will, without question, increase the costs of database development and operation (Solomon, 1967). A totally bilingual French/English database would show all information related to each entry in French and in English: every title, every subject, etc. would appear in both languages. A second option would be to describe an item in the language in which it was written or produced (i.e., English or French) and apply a bilingual thesaurus, in which subject headings would be both French and English. In this case, an item would be listed under an English subject and under its French equivalent. A third possibility is to have

an essentially English database (English is the international standard of bibliographic databases) where all subject headings would be in English, but titles would be listed in the original language of the document.

In a totally bilingual or partially bilingual database, the use of an accurate bilingual thesaurus is essential. An English thesaurus, with the translation left up to each indexer, destroys the reliability of the terminology as translated. Translations of titles and abstracts (whether from French to English or English to French) requires a high degree of proficiency in both languages. Further expertise in the subject area is required to overcome the difficulty of applying a specialized vocabulary which is particular to the discipline.

Another factor to consider is whether the computer system chosen can readily handle any special symbols or diacritical marks (such as accents) needed for a bilingual database. Even if the database is accessed through a printed index, as opposed to on-line, the system must be capable of handling special characters right from the beginning.

If the database were to include heritage languages as well, the problems become more acute since greater expertise is required for translation and transliteration. Additionally, a computer system that handles both Roman and non-Roman alphabets is uncommon (Skolnik, 1972), though not impossible.

SPECIAL MATERIALS

The indexing of audiovisual materials creates some special problems that are not encountered when indexing print material. For example, there is no standard for the bibliographic description of AV materials. Frequently, some of the data usually available for print material (e.g., place of publication, date of publication, even an author statement) are absent (Coty, 1983). Since the purpose of bibliographic description is to assist a person in choosing the appropriate item, a scanty description can become

problematic. The second difficulty is the longer period of time necessary to index audiovisual material (Coty, 1983). To determine the content of a book, we scan its table of contents and index, read the first and last chapters, etc. Audiovisual materials do not lend themselves to such scanning: an indexer must actually view a videotape, do research on an artifact, "run" a computer diskette, etc. Each piece of a kit must be examined before an accurate description and subject analysis can be completed.

Providing a bibliographic description and analyzing the subject content are the two fundamental aspects of indexing. Providing abstracts of materials enhances the usefulness of the database: a brief summary in free vocabulary gives a more detailed analysis of an item in the language of the document. A brief evaluative statement might also be included (i.e., is this item any good? does it accomplish what it set out to do?). However, abstracting requires subject expertise if descriptions are to be concise and accurate. Evaluation of the material requires even further knowledge since criteria to assess the item must be apparent and be consistently applied. (Of course, this activity would apply only to the materials in the database, and not to the resource people). Abstracting and evaluation is very costly in terms of man-hours, in addition, greater storage is required in the computer system to accommodate the much longer record for each item listed. Thus, while highly beneficial, abstracting is an expensive enhancement.

Without the addition of abstracts, indexing still accounts for substantial manpower costs in the operation of a database. Whether borne by organizations that volunteer their own staff or supported by some centralized funding, indexing will cost someone money. This is an activity that must be seriously considered since it is the essential link between the material and the records in a database. Indexing requires professional skills: an indexer must be knowledgeable about proper indexing procedures and have appropriate subject background. Further, if the database is to be even partially bilingual, a working knowledge of both languages is essential. It has been estimated that it takes an experienced indexer approximately ten to thirty minutes to describe and analyze one article, depending on the length and complexity of the item; translation would take additional time. A book necessitates thirty to sixty minutes, and

an audiovisual item often an hour or more.

Thus, a database of multicultural and intercultural education materials would necessitate these basic functions: (a) identification of material and resource people for possible inclusion (i.e., who and what exist out there); (b) collecting the materials and contacting the people; and (c) indexing the material and data on the resource people (i.e., creating the information that goes into the database). Assuming that the central authority acting for CCMIE has arranged for computing services and established the necessary links between that and the indexing function, the data can be entered into the computer system and receive a final editing. The information in the database can now be disseminated on a national scale by means of a printed index, a microform catalogue or on-line. This is the extent of most bibliographic databases go: their purpose is to inform the public of what materials exist but there is generally no indication of how an individual could actually obtain (borrow or buy) the items listed. The ERIC database, Resources in Education, is one of the exceptions to this, since most material listed in it can be obtained directly from the ERIC Document Reproduction Service.

The problem of availability of material listed in an index or on a database is a perennial one. The chronic question is, "That looks like a great article, but how do I get my hands on it?" The issues and problems in supporting a database with the actual materials (i.e., making them readily available through loan or purchase) are legion, but most of them come down to accessibility and costs. To summarize: if the collection and indexing materials were done by a central agency or regional agencies designated for that purpose, then loaning or duplicating materials would be relatively easy and the availability statement for each item in the index would show the central or regional source. The greatest difficulties would be in trying to juggle multiple cross-country requests for one item and the expense of mail or transport services (especially for large or valuable items). In addition, problems arise in the handling of awkward materials and the insurance of valuable ones; fragile and unique items will inevitably sustain damage through shipping and handling. If, on the other hand, collection and indexing were done by volunteer organizations even more problems would arise. Most

organizations that already loan materials place some restrictions on those loans, (e.g., the borrower must be within certain geographic limits; the borrower must be -- if not part of the primary community -- from an affiliate organization or district; the borrower may have to pay a fee; outside borrowers may only borrow during times when the primary clientele are less apt to need the material; certain items, such as artifacts or audiovisual materials may be restricted in availability because of potential damage that they may sustain through handling). For example, an Albertan user of the database may see an item listed that is available through an organization in Nova Scotia. Unless the item is unique, an organization in Alberta or British Columbia will likely have a duplicate; it will be faster and easier to acquire regionally. However, such information may not be listed in the database. Also, those organizations which already loan material have established interlibrary loan channels through which outside borrowers are expected to go in order to obtain material. These channels may not be known by a large number of potential users of this database. This situation would frustrate both the lending organization (if contacted directly by individuals), as well as the individuals themselves if their expectation is to have ready access to materials. Unless a volunteer effort is subsidized at least in part, an organization listed as a source of material in the database will have to bear the manpower costs of filling repeated requests, pay the delivery or mail costs at least in one direction and make provision for lost or damaged materials. Unless a central or regional agency is responsible for providing the material for loan, borrowing these multicultural materials will be less than ideal and often quite problematic.

CLEARINGHOUSES

Throughout this chapter reference has been made to a central clearinghouse, regional agencies and volunteer organizations as possible means of accomplishing the work involved in the operation of a national database. The handling of materials and information in support of a database can be done centrally, decentrally or with a

combination of the two. The effort can be completely funded by a central service that pays for all costs of the operations or it can be accomplished primarily by volunteer agencies.

As discussed previously, there must be a central authority responsible for the overall operation of the database. The degree of central control can range from one of a weak coordinating function to one of total centralization. One method of effecting central organization is through the use of clearinghouses. There could be a central clearinghouse of which the central authority is part and where all functions (collecting, indexing, disseminating information and loaning of materials) are carried out. There are a number of advantages to this choice: (a) all materials can be located in one place and loaned from one service (a definite advantage for users of the system since all queries and requests, all contributions can be directed to one place); (b) standards for selection of material, indexing, etc. can be easily maintained; (c) any changes to the system can be easily accomplished because they primarily affect in-house operations; and (d) all expertise necessary to index, translate and operate the system can be most effectively used since all resources (e.g., in-house training, editors, etc.) are readily available with a central clearinghouse. There would be no duplication of any activity at local or regional locations.

A combination of regional clearinghouses with a coordinating central authority and editor is another alternative. This can function in a number of ways. Each clearinghouse would identify, collect, etc. only those materials from its region, contribute the information on those materials to the database and be responsible for loaning that material to interested parties in any other region. Alternatively, each clearinghouse could identify and index materials in its region but collect materials from every other region in an effort to make the materials readily available to everyone in each region. This latter situation is, of course, very costly but very convenient for database users. Although not as optimum as one central source, regional clearinghouses can be an effective regional presence that can promote the work and purpose of the database agency -- a very important consideration since the real purpose of the entire effort is to inform a variety of people across Canada of the existence and availability of

multicultural and ethnic material.

The regional clearinghouse as described would consist either of agencies established primarily for this particular function (and therefore totally funded and controlled by the central authority) or agencies that already exist and agree to assume clearinghouse functions if their contributions are substantially funded by the central authority. In the second case, the central authority could have a fair degree of control since it would be paying the existing agency for its efforts. Still, other organizational considerations with the existing agency would temper that control.

A looser configuration of the regional clearinghouse concept is one where the regional agency would perform the identification, collecting and indexing of materials voluntarily and contribute information to the central authority/editor. This is the present operational structure for the Canadian Education Index. The major advantage of this option is its low cost to the central authority. The disadvantages are (a) the lack of control which the central authority can exercise over all the support activities, the only real control being the editing of the database itself (for all other functions it must rely on the good intentions and expertise of the volunteer agencies); (b) that any fiscal constraints or organizational priorities of the volunteer agency can very directly affect the scope and quality of its contribution; and (c) the reluctance of many agencies to loan their materials other than through their regular channels or to their regular clientele. If the database were to be an index only, with no commitment to the loaning of materials, this volunteer scenario could work reasonably well providing the agencies involved had a firm commitment to the project and could provide their support over an extended period.

All of these issues and considerations are basic to the development and on-going operation of any database. These are the major hurdles to be overcome if a national database is to function successfully.

SUMMARY

In this chapter, a number of special considerations were identified. The necessity of having some degree of central control was stressed. Responsibilities of the central control body, including operation and maintenance of the database, were discussed and consideration was given to the effect that volunteer services could have on these functions.

The elaboration on the nature of the materials to be included in the database involved the listing of resource persons and audiovisual materials.

The mechanisms for providing the data in a database were described in detail, and cost considerations inherent in these functions were specified. Included in the discussion of indexing were concerns such as rules and standards, the vocabulary to be used in the description of materials, existing thesauri, and the complications involved when indexing in more than one language.

Special issues involved in the loaning of materials were identified, with mention of problems arising with volunteer provision of this service. Lastly the importance of carefully considering the nature of the clearinghouse as a means of accomplishing the work involved in the operation of a national database, were examined.

CHAPTER 6

POSSIBLE SUPPORT FOR THE PROPOSED DATABASE

It goes without saying that the success of any large project depends on careful planning, coupled with adequate human and finanacial support. In previous chapters, the organizational and mechanical aspects of establishing and maintaining the database were discussed. Potential use of the database, current and planned access to computers, language preference, etc. were examined in order to determine the structure of the proposed database. Now, our attention must be turned to the area of possible support for the system.

Two different kinds of support are necessary to operate a national database on multicultural and intercultural education: human resources and financial support. These two types of support are discussed in this chapter.

POSSIBLE HUMAN RESOURCES TO OPERATE THE SYSTEM

Human resources are needed to identify, collect, index, and loan the materials and resources in the database. The section below examines the concerns of operating the system in terms of manpower.

Identification of Possible Providers of Human Resources

To determine the human resource support available for a national database in multicultural, intercultural and ethnic education, members of the superintendent and librarian groups were asked, "Would you be willing, in principle, to supply such services?" Most of the responses were similar for both groups, hence they have been

grouped together for ease of discussion. Where there is a discrepancy in answers, both responses are given.

Respondents were asked, "Would you be willing to contribute information regarding your present holdings to the proposed database?" The vast majority (95%) of the respondents said "yes". When enquired whether they would contribute information to the national database regarding new acquisitions, 97% again responded "yes". However, when asked if they would be willing to identify materials and resources other than their own acquisitions for inclusion in the national database, only 58% of the total respondents indicated a willingness to do so. When the responses of the two groups were examined separately, it was found that 84% of the superintendents said "yes", in comparison to only 45% of the librarians. When asked, "In principle, would you be willing to collect materials for inclusion in the proposed database?", 60% of the respondents were agreeable.

The next series of questions addressed the respondents' willingness to index materials for inclusion in the database. Of those responding, a large majority (88%) were willing to index materials they themselves produced. Only 43% of the respondents were willing to index other materials and resources for inclusion in a national database.

The question of loaning or duplicating materials identified in the national database was addressed to those groups considered to be professional collectors of information. Principals, superintendents, librarians, cultural groups and specialists were asked the following question: "Recognizing that there may be some materials which you could not loan or duplicate, would you, in principle, be willing to loan or duplicate materials identified in the national database to individuals or organizations other than your normal clientele?" To this question, 89% of the respondents indicated "yes".

Finally, the superintendents and librarians were asked if they would be willing, in principle, to act as a distributing or lending agency for materials listed in the national database. In agreement were 33% of the superintendents and 67% of the librarians.

POSSIBLE SUPPORT FOR THE PROPOSED DATABASE

Identification of "In Principle" Conditions

From the questionnaires, a number of superintendents and librarians were willing to provide the human resources necessary to operate the database, but only "in principle". In order to determine under what conditions assistance would be supplied, a sample of respondents was selected for telephone interviews. Of the superintendents contacted in the initial questionniare, seven indicated a willingness to perform the functions of identifying, collecting, editing, indexing and lending/distributing. Of the librarians, six indicated a willingness to perform these functions. The thirteen librarians and superintendents willing to perform all five tasks comprised the sample for telephone interviews. Numerous attempts were made to contact each of the thirteen individuals, with eventual contact being made with four librarians and four superintendents. While this is, admittedly, a very small sample, it was felt that the intensive nature of the information gathered in the interviews would make up for this deficiency.

When asked to specify the financial conditions required to identify, collect and index resources and materials for a national database, two of the four librarians and three of the four superintendents indicated they would do so voluntarily. The remainder of the sample would require further resources.

Additional comments were provided by the sample chosen for telephone interviews. Of the respondents who volunteered their services, one librarian identified the use of a database called MINISIS, and the retrieval of information from UTLAS. Another librarian outlined the use of CEI to identify, collect and index materials. One of the superintendents described the school systems' bilingual Audiovisual Center, which is manually catalogued and active in Northern Ontario. A willingness to share present and future materials, and those evaluated as "excellent", was indicated by two superintendents. A school system's use of the School Board's cataloguing service was also identified by one of these superintendents.

Respondents who wished to be paid for their services pointed out that funds would be necessary to expand their existing resources. One librarian stated that financial support would depend on the volume of work involved. The group of

superintendents stated that funding would definitely be required due to the limited amount of materials existing in the school systems.

FUNDING

The second type of support that needs to be considered is financial support. In the case of the proposed national database of multicultural, intercultural and ethnic education resources and materials, funding must be found for the following activities:

1) initial development of the database system;
2) initial identification, indexing and entry of existing materials and resources;
3) establishment of a central clearinghouse, and collection of existing materials at this clearinghouse (if required);
4) ongoing identification, indexing, entry and collection of new materials and resources;
5) ongoing operation of the database system; and
6) operational costs involved in loaning materials identified in the database.

In most commercial database systems, cost for the latter two areas are usually recovered from the users of the system. The costs of ongoing identification, indexing and collecting activities is expected to be recovered from users or from volunteer agencies (as in the Canadian Education Index). Chapter 6 of this report indicates that there are librarians or superintendents of school systems willing to perform these tasks on an ongoing basis, but some financial support would be required. The major costs identified above in 1, 2 and 3, cannot be recovered from user costs, since they predate the actual operation of the system. The most obvious source of funds for the creation of the database system, establishment of a central clearinghouse, and indentification, indexing and collection of existing materials would be the Office of the Secretary of State for Multiculturalism. While it could be expected that the Office of the Secretary of State might fund the total creation of the system, it is well known

that the government is more receptive to grant requests if alternate sources of funding have been acquired. A second source of funding might be the Social Sciences and Humanities Research Council of Canada. Investigation of the funding guides for the Council, and discussion with representatives from the Council and from the Canadian Education Association (who had requested funding for a similar database) indicated that the response from the Council would not be positive unless a strong case could be made for the significance of the proposed database in promoting research.

The third source of funding could be philanthropic organizations having a particular interest in aspects of multiculturalism, interculturalism, or ethnicity. An analysis of such agencies listed in The Canadian Directory to Granting Agencies and Foundations, (Arlett, 1982) identified a number of agencies which might be approached. While some agencies fund strictly on a local level, twenty-one agencies which fund either on a provincial or national level were identified. The names and addresses of each agency, the specified purposes, interests, and grant limitations are provided in Appendix 2. Although twenty-one potential agencies were identified, the complexities of grant limitations make it impossible to determine whether monies to support a national database of multicultural, intercultural and ethnic education resources and materials would be granted from these sources. To do so would require specific application to each individual agency by the CCMIE.

POSSIBLE SUPPORT FOR THE PROPOSED DATABASE

CHAPTER 7

POSSIBLE COMPUTER SYSTEMS

In Chapter 2, "Establishing a Perspective", the historical development of computerized information management systems was presented, as were the advantages that such systems present for handling large amounts of materials using a multi-dimensional approach.

Also presented in Chapter 2 was the question that reflects the purpose of this study: whether an information management system can fulfill the functions of collecting, recording and distributing information on materials and resources in multicultural, intercultural and ethnic education.

Three possible computer systems can be envisioned for the operation of the proposed database:

1) one or more microcomputer database systems;
2) a centralized mainframe database system; or
3) a distributed processing database system.

These three systems, advantages and disadvantages, and examples of each is discussed in this chapter.

MICROCOMPUTER DATABASE SYSTEMS

When investigating alternate ways of establishing a bibliographic database, the potential application of the microcomputer should not be overlooked. As the cost of microcomputers continues to decrease, they become increasingly popular in business,

educational and home environments. An astounding array of software materials has been produced to support these systems.

Microcomputer systems are continually becoming more similar to mainframe computers in the variety and specificity of functions which they can perform. New telecommunications devices are allowing microcomputers to interact with each other in a more effective and efficient manner. Self-contained systems are also lower in maintenance costs and are thus more desirable.

Software programs are typically "menu-driven", allowing the novice to use the system without learning sophisticated programming skills in one or several computer languages. In addition, documentation explaining how to operate the program is usually provided, often in a "tutorial" format which attempts to make learning the operation of the program less threatening and time consuming.

One of the key considerations in the selection of a microcomputer system is the size of the database (i.e., the number of records). In situations where the number of records to be included exceeds twenty thousand, the use of hard (as opposed to floppy) disks for storage of data is often advised. The decision to select a hard disk drive system affords better retrieval capabilities but it also involves the purchase of more expensive equipment. Some systems using hard disk drives are capable of retrieving (downloading) data from mainframe[1] computers. The question of compatability between one brand of microcomputer and another and mainframes is still being addressed by the industry.

A list of possible microcomputer software packages appropriate for developing a bibliographic database was developed by reviewing current trade journals and "BRS After Dark", a computerized database service. Both of these sources provided fairly in-depth information, including names of individuals to contact for further information regarding the software packages (programming aids which enhance the operation of the system). Seven software representatives were contacted by telelphone. In reviewing these commercially available software packages, the following criteria were used: cost

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[1] A mainframe computer is one which has input, memory, arithmetic/logic control, large storage and output functions. These are generally large commercial systems

of the software package and additional software required to operate it; cost of hardware required to support the software package; other possible applications for the software package; features of the software, including search capabilities and input/output format; variability of input format and "field" or item lengths; and the number and size of records which the software can process. In addition, the amount of documentation provided, the ease of operation of the system by the novice and training programs provided were assessed. Finally, an overview of who is presently using the software, how the software is being used, the possible interface of this software with other bibliographic databases, and comments regarding the performance of the software package were addressed.

Comparison of Microcomputer Software Packages

As Table 13 indicates, the following seven microcomputer software packages were reviewed: The Data Transfer System, Personal Bibliographic System, Bibliography Personal Data Manager, The Librarian, Desktop Bibliography and Golden Retriever.[9] In response to market demand and competitions, software designers have updated and upgraded their programs to make them compatible with larger and more complex microcomputer systems. Even so, all of these microcomputer software packages are quite new; in fact, the oldest is The Librarian, which was released in 1981.

The cost of these software packages varies from $19.95 (Desktop Bibliography) to $1800.00 (Golden Retriever). The average cost for the packages is $472.13. The variance in price for these suggests a difference in the number of records which the system can handle, and the versatility and sophistication of program operations and documentation provided. Discounts may be available when several copies of a software package are being purchased. Some programs require an additional software package to operate the system (i.e., Golden Retriever, The Data Transfer System Bibliography) and this must be included in calculating the cost of the system.

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[9] It should be noted that several of these systems have been revised since their creation. These revisions have resolved minor problems which clients had identified.

One must also consider the cost of the hardware required to support the system and the number of locations for which both hardware and software must be purchased. Additional information concerning the hardware required to operate these programs and specifications for these programs are found in Table 13 under the following headings: CPU, Operating System, Disk Size/Type, Hardware and Other Software Required. When selecting the hardware package, consideration should be given to the following factors: will the manufacturer of equipment remain in business?; is the equipment well-supported with software, accessories and options and good after-sales service program?; are the component parts of the system compatible with each other?

Short of actually testing the capabilities of the software package on one's own data, it is difficult to fully and fairly evaluate its features. Upon reviewing the seven software packages for this study, it was discovered that they were very similar in the operations they performed and the manner in which they did so.

Under the section entitled "Applications" (Table 13), the purposes for which the developer/supplier views this program as being suitable are outlined. When a variety of applications are listed, it may mean that the program allows for flexibility and creativity in establishing the format of the database or that the program is very simplistic in its structure and would do a mediocre job for many applications. Typically, the developer/supplier of the program will attempt to market the software package for no less than three applications in an effort to increase his market share. In evaluating a software package, a list of clients presently using the software package should be obtained from the supplier in order to assess the merits of the product before committing oneself to purchasing it. Under the section entitled "Clients", a listing of people presently using the software packages is given. In addition, several suppliers included listings of actual clients using their bibliographic database software and reviews of their products.

As mentioned previously, attention must be given to the number of records that the system is capable of holding. For systems using floppy disks for the storage of data, variations in the number of records held is due to difference in the size of the

records themselves. One developer/supplier indicated that the number of records which could be put onto floppy disks was limited only by the number of disks used. The impact of such an approach on indexing and searching capabilities should be given serious consideration.

A number of other software features must also be taken into account. The variety of print and non-print materials which would be included in this database would necessitate a software package which allowed for a range of formats in which data could be input; flexibility in creating these formats would also be desirable. A feature of variable field length that would allow textual data to be input without using contractions or abbreviations was available on Bibliography, Golden Retriever, Personal Bibliographic System, Personal Data Manager, and The Data Transfer System. Also beneficial would be the ability to define these fields and have several fields available for use for each record (i.e., Golden Retriever, Personal Bibliographic System, The Data Transfer System).

All of these software packages are "menu-driven", allowing the individual entering the data to respond to prompts for information and, in some cases, a worksheet format. This means that the amount of training required to learn how to operate the program is minimal. In time, however, a menu-driven system can become cumbersome and time-consuming for the experienced user. It is also essential that the software package selected includes a good manual(s) documenting the system. Ideally, this manual should include a well-organized table of contents, sample programs and files, and a "trouble shooting" section (The Data Transfer System, The Librarian and Personal Bibliographic System include these features). Updated versions of these manuals should be available and the name and address of a contact person should be listed in case problems occur with the system. Some systems sell manuals separately from the software (i.e., Personal Bibliographic System, Personal Data Manager) so that someone considering purchasing the software can better evaluate it. One developer/supplier provides demonstrations for potential clients (Personal Bibliographic System) and another provides training sessions for staff who will be using the system (The Librarian).

Table 13

Microcomputer Bibliographic Systems

Software Name	Bibliography	Personal Data Manager	The Data Transfer System
Version	First Version	Version 1.0	First Version
Released	September 1982	July 1983	November 1983
Cost	$125	$540 (for both Sci-mates packages $880)	$200
Developer / Supplier	Digital Marketing Corporation 2363 Boulevard Circle Walnut Creek, Ca. 94595	Institute for Scientific Information 3501 Market St. University City Science Centre Philadelphia, Pa. 19104	Personal Bibliographic Software Inc. P.O.Box 4250 Ann Arbor, MI 48106
Application	Word Processing, Bibliography -(used to handle references for journals, materials, etc.)	Database Management. File Management	Database Management, File Management, Library Applications, Indexing, Information Retrieval
Features	-only useful for bibliographic references when used in conjunction with Notebook software program.	File layout is adaptable to any layout	-page scrolling, logfiles -various handshaking protocols with host system -directory of files (directory can be reformatted)
Capacity (Number of Records)	40,000 records -4,000 characters of text allowed in each field.	32,000 records of up to 230 characters each 4,200 records of up to 1894 characters each	-238 citations (Apple and single-sided) -480 citations (IBM and other double sided disks) 2000 citations (double sided, double density)

Table 13 (Extended)

Microcomputer Bibliographic Systems

Personal Bibliographic System	The Librarian	Desktop Bibliography	Golden Retriever
Version 1.0	Version 2.0	First Version	Version 3.3
April 1983	1981		January 1982
$250 ($75 for manual and demonstration)	$29.95 ($19.95 each in quantity of 3 or more)	$19.95	$1800.00
Personal Bibliographic Software Inc. P.O. Box 4250 Ann Arbor, Michigan 98106	Professional Computerware P.O. Box 409 Morgantown, Ga. 30560	Dynacomp Incorporated 1427 Monroe Avenue Rochester, N.Y. 14618	Capitol Systems Group, Inc. 11301 Rockville Place Kensington, Md. 10795
Miscellaneous, Library Applications, Bibliographic system, Word Processing	Database Management; Library Applications, (i.e. catalogue system, indexing, information retrieval)	Database Management, library applications, information retrieval	Database Management, Library Applications, Miscellaneous -suitable for bibliographic processing applications that do not require serials feature
-automatic punctuation of citations -screen editor allows easy insertion, deletion, moving, merging, copying of text -uses American National Standard for bibliographic citations (ANSI)	-abstracts of up to 252 characters -can edit and sort major headings, retrieval categories and any field on each item	-search and sort methods provide a variety of ways of accessing data -good editing function	-designed by a Librarian -classify record size as small, medium, large for faster input
-see "Data Transfer System" -more capacity with hard disks	-500 items per disk -can use additional disks	-limited only by available disk space	-4,500 records (40 megabyte floppy disk) -20,000 records with 2,000 characters per entry (10 megabyte hard disk)

Table 13

Microcomputer Bibliographic Systems (Continued)

Software Name	Bibliography	Personal Data Manager	The Data Transfer System
Data Input Format(s)	-20 fields available for each record -user defines format and style	-create text format and field labels -edit from keyboard, another Sci-mate file, word processor or Sci-Mates Universal On-line Searcher -suggests using relational approach rather than indices	-20 formats available -some for non-print (i.e. artwork) -can control number of fields you use -all fields are variable length -variable record size
Indexing and Search Capabilities	-search on designated field -can search on any word in text -Boolean logic (except "not")	-free text search capability (words, characters, phrase,etc.) -Boolean logic (except "not")	-can search on first field of record (up to 80 characters in length) -can search and build multiple indexes -user can set index terms
Printout Format	-reflects data input format	-you create report format	-by index
CPU	8080, 8085, 8086, 8088	Z80, 8080, 8086, 8088	8086, 8088, 6502
Operating System(s)	CPM, CPM86, MSDOS, PCDOS	CPM80, CPM86, PCDOS	USCD -P system

POSSIBLE COMPUTER SYSTEMS

Table 13 (Extended)

Microcomputer Bibliographic Systems (Continued)

Personal Bibliographic System	The Librarian	Desktop Bibliography	Golden Retriever
see "Data Transfer System"	-series of formats already established for print and non-print materials	-controlled -you select from a menu	-should break up into smaller databases -up to 20 fields for 1 record -total of 32 different fields can be created (variable length) -field tags (names) under your control -prompted worksheet format
-can search on first field of record (up to 80 characters in length) -user can set index terms -can search and build multiple indexes -Boolean logic (except "not")	-up to 8 retrieval categories for each entry -can search categories or key words -lists categories already created and assigns number which you reference -maximum of 200 possible categories	-keyword searches globally or by category -no Boolean search capabilities -can only search one keyword at a time -can only build one index at a time	-can index any field -can search on first 3 characters of field tag -Boolean logic (and, or, not) -can search on alpha and numeric strings
-by index -control of format	-can sort -printout reflects input format	-can sort alphabetically -printout in same format as input	-variety of formats including bibliographies, indexes, checklists and current awareness publications, on-order files, user prefiles, automated vertical files, community bulletin boards and referral services, correspondence files, technical literature collections, organization membership and mailing lists
8086, 8088, 6502	6502	Z80	Z80, Hewlett Packard, IBM PC and IBM XT
UCSD-P system	APDOS		TRSDOS 2.0

Table 13

Microcomputer Bibliographic Systems (Continued)

Software Name	Bibliography	Personal Data Manager	The Data Transfer System
Languages	C	Assembler subroutines	Pascal
Disk Size / Type	5 1/4" and 8" floppy disks	5 1/4" and 8" floppy disks supports floppy and hard disks up to 20MB	5 1/4" floppy disks
Installation	Menu-driven	Menu-driven	Menu driven
Hardware	48K RAM CPM, 64K RAM CPM86, MSDOS or IBM PC	64K RAM, Apple II, Apple II plus, Apple IIe, TRS 80 Model 11 and 12, 128K RAM, IBM PC	64K RAM, IBMPC, Apple II, Apple IIe, Apple III, IBM displaywriter
Other Software Required	Notebook ($150)	-accepts ouput from and input to word processing text files -Universal on-line searcher	-Personal Bibliographic System
Documentation Provided	Manual provided	-manual included or can be purchased separately for $40 -contains table of contents, index and sample files and programs	-manual provided containing a "trouble shooting" section, sample files and programs -updated information is provided
Clients	educators, researchers	-schools, universities, banks, government departments	school boards, libraries, researchers

Table 13 (Extended)

Microcomputer Bibliographic Systems (Continued)

Personal Bibliographic System	The Librarian	Desktop Bibliography	Golden Retriever
Pascal	Applesoft	Basic	
5 1/4" and 8" floppy disk Hard disk for IBM PC XT	Floppy Disk	5 1/4" floppy disks	8" floppy Hard disk for IBM PCXT
Menu driven	Menu-driven	Menu-driven	Menu-driven
64K -128RAM. Apple II, Apple IIe, Apple III, TERAK, VICTOR 9000, IBM PC, IBM PC XT -2 disk drives	48K RAM, Apple II plus, Apple IIe, Apple III -1 disk drive, printer is optional	32K -48K RAM, TRS Model I or II -printer is supported	-3-8 disk drives or a hard disk system -a full 24x80 screen and ASCII keyboard -printer
UCSD P-system editor			Golden Retriever and Checkmate are companion packages which can be purchased separately or together
see "Data Transfer System"	-27 page manual with table of contents, "trouble shooting" section, sample files and programs -updates to manual provided -will also do tutorials for large installations	little provided due to low cost	-manual (included with package or purchase separately for $30.00 -includes table of contents, index, sample files or programs -software maintenance available for updating
researchers, writers	-libraries in small school systems -larger school district libraries	-new program with few users -target is professionals who want to establish indexing system for journal articles	-school libraries, university professors -libraries for banks and professional associations

Table 13

Microcomputer Bibliographic Systems (Continued)

Software Name	Bibliography	Personal Data Manager	The Data Transfer System
Comments	-works best on IBM PC -does not work well on CPM86 (i.e. Apple, Televideo, Osborne) -listing of users available on request	-on-line searches of BRS, Compuserve, Dialog, Dow Jones News Retrieval, ISI Search Network, Medline -charges based on connect-hour	

Table 13 (Extended)

Microcomputer Bibliographic Systems (Continued)

Personal Bibliographic System	The Librarian	Desktop Bibliography	Golden Retriever
-focus on bibliographic references not data base management -problem with ANSI not being universally accepted -must break an extensive bibliography into manageable pieces -menu system can be annoying for experienced user (too time consuming) -has been previewed in professional journals -listing of current users available on request	-purchased by Edmonton Public School Board (9-21-83)	-contact person was not knowledgeable about product	-listing of current users provided on request -has been reviewed in several professional journals

User satisfaction with a software package is often determined by the speed and efficiency of the system's search capabilities and the format of the resultant printout. A variety of search capabilities are available within these software packages. Some use keyword, indexes, and field searches, while others provide Boolean[10] search capabilities similar to large bibliographic databases. Only one package allows for Boolean searching using "not" (Golden Retriever); this program also recognizes the first three characters of the search term, thus reducing the amount of typing required.

The best way to evaluate the quality of the printed output from these software packages is to view the real thing. Very little detail was provided by developers/suppliers regarding the output format. As Table 13 indicates, the output format for the majority of the programs reflects or matches the input format. Programs which indicate that you can create the format for the print output still have limitations. One package, Golden Retriever, provided extensive information regarding its format for printed output.

Summary - Microcomputer Systems

In summary, it appears that if a microcomputer system was chosen for the CCMIE database, a software package designed by a librarian (Golden Retriever, Personal Bibliographic System) for use on a hard disk drive system would possibly be suitable. It is questionable that even this system with a hard disk could hold the amount of information necessary for the proposed national database.

The capabilities of microcomputers are advancing at astounding rates. While at this time it is not recommended that the CCMIE utilize a microcomputer system for the proposed database, it will come to pass in the near future that such systems will be able to handle the amount and variety of data which will need to be included in this database.

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[10] Boolean logic is a system of using algebraic notation to express logical relationships. Boolean logic allows users of information systems to combine terms in a search or to exclude terms from a search.

CENTRALIZED MAINFRAME DATABASE SYSTEMS

Large mainframe computers have offered database facilities for many years. Due to the nature of large systems and economy of scale, large mainframes can offer many features which microcomputer database systems can not. First, in terms of storage space, mainframe systems offer great amounts of on-line storage. This on-line storage can be increased by the manager of the system based upon the estimated shared need of many applications. Since the manager will always keep some percentage of non-allocated space available, each entry does not risk using up all the storage space.

The second feature unique to large systems is the ability to make many different and powerful programs available simultaneously. Small systems traditionally run only one program at a time, with the user of the system having to load a new program into the computer for each application. In a large time-shared mainframe system, all programs are available to all users at all times. For example, one group of users could be adding new information, another group could be checking and editing data, while still more could be searching. Mainframe computers also allow extensive changes to be made (for example, to the basic structure of the database and to all the records in the database). This would be an onerous and time consuming task on a microcomputer system.

The third feature of a centralized mainframe system is the ability for many users to simultaneously access the database from many different parts of the country through low cost "packet switched" digital communications lines.[11] Because of the demand for cheap digital transmission, the communications industry has developed packet switched networks, which allow low cost, high speed transmission of digital (computer) data.

Packet switched networks take advantage of the fact that a single dedicated telecommunications circuit can transfer a tremendous amount of digital communications

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[11] The most commonly used packet switched network in Canada is the Datapac network, operated by the Trans Canada Telephone System. A local Datapac telephone number is available in almost all cities in Canada.

between two points. Further, most computer communications actually need to use only a very small proportion of the available capacity of one telecommunications circuit. Frequently, there are many digital communications occurring simultaneously between major cities. In order to capitalize on these three features, communications companies have designed systems which allow many different digital conversations to share the same physical telecommunications circuit by "packetizing" data and transferring this data from one major city to another over a "packet switched network". This sharing of the same telecommunications circuit allows digital communications using such systems to operate at less than 10% of the cost of normal long distance telephone charges. Computers which act as "host" computers on these networks need some relatively expensive hardware to allow this capability, but users wishing to connect to these "host" computers from a terminal or microcomputer need only an inexpensive telephone modem.

The fourth characteristic of centralized mainframe systems is an extremly important feature often overlooked by people deciding whether to use a small "in-house" computer or a large mainframe system. Large mainframe systems are operated by computer professionals who are used to protecting the system and the data from problems. This protection includes automatic "back up" of data. "Back up" is the procedure of making one or more redundant copies of all data in a database each time the data is changed; a system problem or failure will not mean the loss of data. While this procedure is recommended to all operators of microcomputer systems, it is not always, or even usually, carried out on a daily basis, due to the amount of time necessary or inability of the system to provide such capabilities.

COMMERCIAL MAINFRAME BIBLIOGRAPHIC DATABASE SYSTEMS

Two different types of centralized mainframe database systems were examined in this study: commercial operators of database systems and university research systems which support database services. This section discusses those commercial

systems which had developed (or indicated a willingness to develop) packages appropriate for use in managing a bibliographic database.

A number of commercial database operators who were creating databases similar to the one required by CCMIE were contacted by letter. Their responses, which varied in format and depth from promotional brochures to actual quotes and presentations by their staff, provided the data on which the evaluation was based. In reviewing these mainframe operated commercial systems, the following criteria (Blue, 1979) were considered: the ability to create the database, hardware, software, the costs of creating, storing and retrieving data; costs of designing the database, costs of adding, modifying and deleting data from the database; provision of an invoicing system for users of the database; advertising and marketing of the database; searching capabilities of the database; and flexibility of format for input and output of data. Lastly, the amount and type of documentation and training provided, and the accessibility and security of the data were considered.

The following companies were contacted: Lockheed Information Systems (DIALOG); Bibliographic Retrieval Systems (BRS); Canada Institute for Scientific and Technical Information (CISTI) publishers of CAN/OLE, CAN/SDI and others; Ontario Ministry of Education, publishers of ONTERIS; University of Toronto Library Automation Systems (UTLAS); QL Systems Ltd.; and Infomart.

DIALOG and BRS are the two largest commercial operators of bibliographic databases in the world. A great deal of published literature (both informational and evaluative) is available on both systems. Published literature indicated that each system could mount the bibliographic portion of the database with no problem, but no information could be found on the ability to mount the resource person and agency aspect. Representatives from both systems were asked to provide specific information and proposals to mount and operate the database. DIALOG failed to respond to any of the requests for information. While BRS stated in a letter and on the telephone that they would be interested in mounting the system, requests for detailed, specific information elicited no further response.

POSSIBLE COMPUTER SYSTEMS

ONTERIS is the Ontario Education Resources Information System. It is a bibliographic database which provides online access to educational information produced in Ontario. Although ONTERIS operates its own database as part of the Government of Ontario computer system, it has contracted with BRS to make the database searchable by the public.

The Supervisor of Database Production for ONTERIS indicated that, "although our database does contain records of documents on multiculturalism, those are only a small portion of our database. ONTERIS contains no directory-type information, such as descriptions of information centres and agencies" (Purmalis, 1984). This letter went on to indicate that the people at ONTERIS would be willing to provide information on database structure and production techniques. Conversation with others involved in ONTERIS indicated that, since this is a provincial database, it was unlikely that it would be possible to have the proposed national database of multicultural, intercultural and ethnic education resources and materials produced by ONTERIS.

The National Research Council responded that "priority for mounting databases on CISTI's computerized system is given to files of interest to the scientific research and industrial communities" (Lacroix, 1983). This would indicate little possibility of CISTI mounting the proposed national database of multicultural, intercultural and ethnic education resources and materials. UTLAS Incorporated is a wholly-owned subsidiary of the University of Toronto. It operates as a large computer service organization for libraries and information centers and maintains a bilingual on-line bibliographic database which offers computer-based systems, services and products in both English and French. The Catalogue Support System (CATSS) produced by UTLAS is a centralized shared cataloguing system currently containing over 21 million records. UTLAS services are currently utilized by over 70% of the research and university libraries in Canada. UTLAS plans,

> ...to become an "information provider", servicing markets well beyond libraries, such as supplying information on new books and periodicals and interlibrary information to consumers through the Telidon/Videotex technology or other new forms of information delivery (UTLAS, 1983:1).

POSSIBLE COMPUTER SYSTEMS

Discussions were held with Mark Haslett, marketing representative for UTLAS, regarding the possibility of using the UTLAS system for the implementation of the proposed national database of multicultural, intercultural and ethnic education resources and materials. He indicated that UTLAS would be an appropriate system for the cataloguing of bibliographic information, that most of the monographic titles would probably already be indexed in the existing CATSS database, and that these indexed files could be transferred to the CCMIE database, then modified. He also indicated that until the "user oriented" system indicated above was implemented, UTLAS would not be generally searchable by non-librarian users. He indicated that UTLAS is currently encouraging the addition of special collections (which could include audiovisual collections) to the CATSS database. UTLAS was not designed to provide indexing access to periodicals, or to be a database containing resource persons and agencies. Because these features would form an important part of the CCMIE database, UTLAS is probably not an appropriate system for this venture.

Infomart, a Canadian commercial database corporation, is the world leader in the use of the Telidon technology for commercial database applications. Telidon is a videotex[12] system which allows users to access information via a tree-structured search procedure. This kind of procedure allows simple movement through a database along a single dimension. While videotex tree-structured searches are extremely appropriate for many kinds of information retrieval, they are not particularly appropriate for the kind of database where access to information must be made through multiple paths. In order to provide the more adequate search procedures needed for a bibliographic database, Infomart would need to provide a gateway to a true bibliographic database system. Infomart supports a Private File Service, but the cost and capabilities of this service were not provided.

When asked to demonstrate access to bibliographic databases, and access to a sample resource person database, Infomart was unable to provide examples. Infomart indicated that they could develop special "gateways" to bibliographic and resource person databases, but this would be done on a special programming rate of $300 per

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[12] A system which transmits or receives information via images on a screen

man-day. Appendix 4 contains a formal proposal from Infomart to develop and deliver the proposed national database of multicultural, intercultural and ethnic education resources and materials.

QL Systems Limited is a Canadian company which offers a full range of on-line services including facilitites for the creation and operation of private and public databases. It was able to demonstrate a number of bibliographic databases which were similar in structure to that required by the CCMIE, and could also demonstrate a resource person database. The system operated by QL offers easy searching strategies, provides Boolean logic and provides phrase searching capabilities. QL Systems is connected to the Datapac network and, hence, is available worldwide through standard ASCI terminals or microcomputers with telephone connections.

QL proposed building the database from machine readable copy which the CCMIE would supply either from magnetic tape or through on-line entry. The necessary programs to convert the data to a format which could be read by the QL programs would then be written. The output would be formatted in a display style chosen by the CCMIE. QL would operate the database for an experimental period of one or two years without any cost for creating, maintaining updating or storage of data. Users would be charged for searches and the costs of printing search results. QL would assess the level of use during the experimental period and would determine if the database would eventually pay its own way through usage. If so, they would continue to operate the database at no expense other than user costs, and would pay a royalty of 10% of all billings for use of the database to the CCMIE. QL would also supply monthly statistics to the CCMIE to give the types and locations of users accessing the database. Announcement of the database's availability and training workshops would also be provided by QL Systems.

Appendix 5 contains a formal proposal from QL Systems to mount and operate the proposed national database of multicultural, intercultural and ethnic education resources and materials and includes examples of output from similar operating databases operated by QL Systems.

POSSIBLE COMPUTER SYSTEMS

UNIVERSITY RESEARCH SYSTEMS - THE PROTOTYPE SYSTEM

During the process of researching the feasibility of developing a national database of multicultural, intercultural and ethnic education resources and materials, a great deal of literature was examined in the areas of library systems and information management systems. Other than the Project Director and the Associate Project Director, the members of the Project Team had little or no background in these areas. In order to understand the complexity of the issues being addressed, it was decided that a prototype information system would be developed in order to examine these issues in a real, "hands on" environment.

During the development of the prototype system, questions were asked such as:

- what elements or fields should be included?
- should the resource people and agencies be included in the same database as the bibliographic materials?
- what kind of thesaurus should be used?
- how do you identify materials for inclusion in the database?
- how do you index materials?
- how much time does it take to enter items?
- how can items be entered in foreign langauges?
- how long does it take to translate items?

The Stanford Public Information REtrieval System (SPIRES) at the University of Alberta was used to implement the prototype system. SPIRES was developed at Stanford University, and is a fourth generation "general purpose" data base management system. This means that it is a self contained, user friendly, system capable of supporting very large subfiles. Because of the nature of SPIRES, it is possible to create a very complex single database consisting of a number of interrelated "subfiles" quite easily and relatively inexpensively.

After analysing the needs identified in the literature and from the questionnaires, it was decided that the best structure for the proposed database would be to create the materials subfile as a separate subfile from that of the resource agencies and

individuals subfile. The two sets of descriptors from the Human Relations Area Files (Outline of World Cultures and Outline of Cultural Materials) were seen to be the most appropriate thesauri for indexing. It was also decided to keep a record with each item of the agency or agencies which had a copy of the item. These decisions resulted in a set of five interrelated subfiles as shown in Figure 1. Of the five subfiles, two (MATERIALS and RESOURCES) are the subfiles which the user wishing to retrieve information would access. The other three (SUBJECTS, CULTURES and RESOURCE CENTRES) are set up to link the two major subfiles together, to improve the efficiency of the system and to allow for easy administration of the subfiles. Each of the five subfiles is described below.

The MATERIALS Subfile

The MATERIALS subfile contains a complete bibliographic description of monographs, periodicals, audiovisual materials and artifacts. Each item is indexed according to a particular culture (or cultures) from the Outline of World Cultures and also according to at least one entry from the Outline of Cultural Materials. The location of each Resource Centre where the item exists is also given.

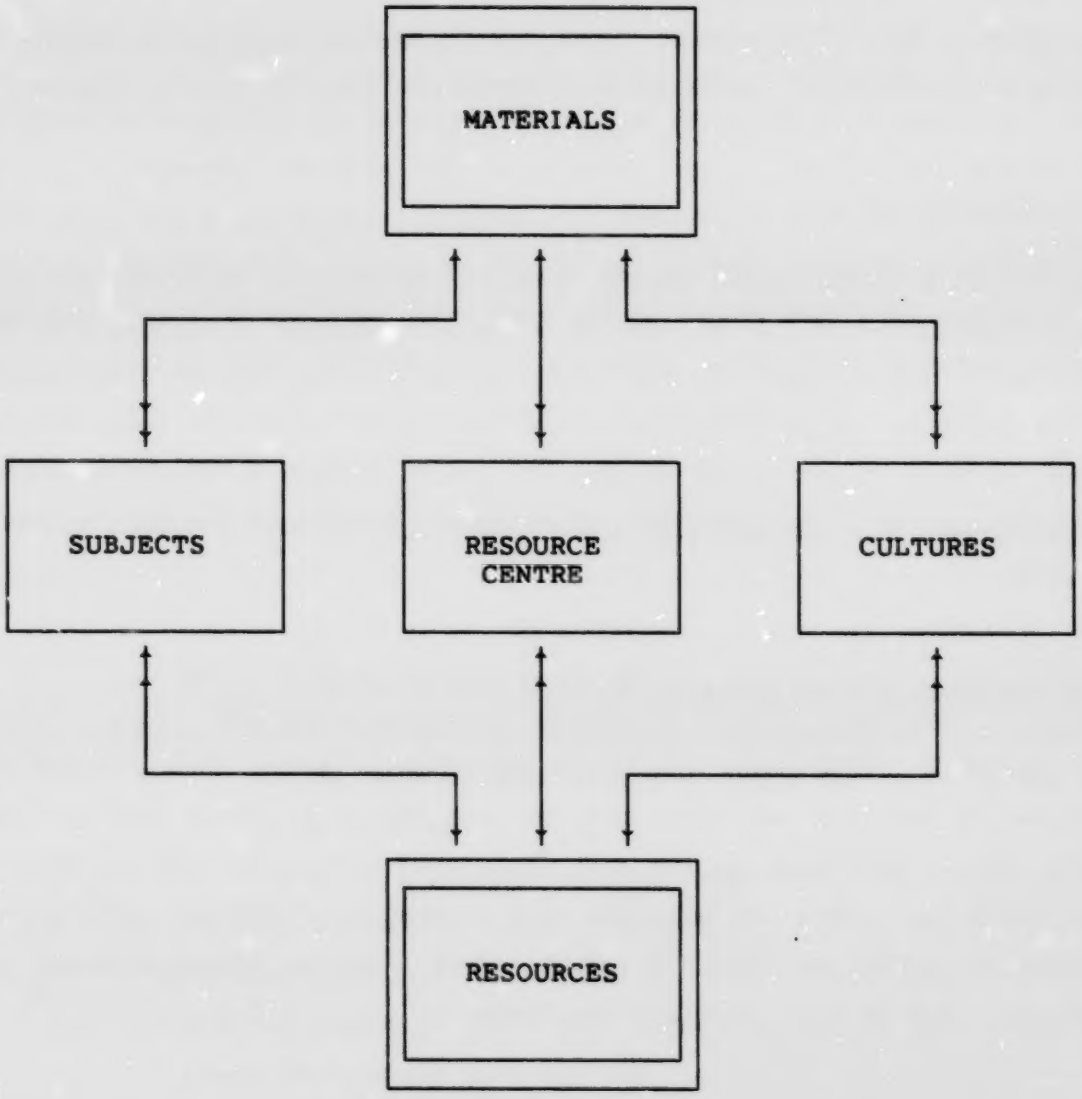
The RESOURCES Subfile

The RESOURCES subfile contains a complete description of resource centres or individuals who work in the area of multicultural, intercultural and ethnic education. Each entry is indexed according to a particular culture (or cultures) from the Outline of World Cultures and also according to at least one entry from the Outline of Cultural Materials. The address of the individual is also given along with their areas of interest or expertise, costs for their services, etc. If the person or organization is associated with one of the entries in the RESOURCE CENTRE subfile, this is indicated.

POSSIBLE COMPUTER SYSTEMS

Figure 1

The Prototype System



‡ indicates initial passing of linkage information

† indicates linkage between files

POSSIBLE COMPUTER SYSTEMS

The CULTURES Subfile

The CULTURES subfile enables linkage within and between the MATERIALS and the RESOURCES subfiles so that any material or resource individuals or agencies with the same entry from the Outline of World Cultures can be linked together. Since entries in the Outline of World Cultures are coded, this subfile contains the code and the literal description in each official language. Hence, indexing an entry in either the MATERIALS subfile or the RESOURCES subfile makes it automatically searchable in either language.

The SUBJECTS Subfile

The SUBJECTS subfile enables linkage within and between the MATERIALS and the RESOURCES subfiles so that any materials or resource individuals or agencies with the same entry from the Outline of Cultural Materials can be linked together. Since entries in the Outline of Cultural Materials are coded, this subfile contains the code, and the literal description in each official language. As a result, indexing an entry in either the MATERIALS subfile or the RESOURCES subfile makes it automatically searchable in either language.

The RESOURCE CENTRE Subfile

The RESOURCE CENTRE subfile was created for efficiency reasons. Since a number of materials (or resources) may come from the same centre, the official entry for the name, address, postal-code, etc. for each centre would need to be made only once in this subfile. Each time a new entry was made in either the MATERIALS subfile or the RESOURCES subfile, the RESOURCE CENTRE subfile would be referenced instead of redundantly entering all the information on location.

Documentation of the Prototype System

Appendix 6 contains a copy of the Technical Manual and the User's Manual which were developed for the Prototype System. The Technical Manual contains a description

of each of the elements in each of the five databases, and the kind of information which each would contain. The User's Manual describes how one would enter data, modify data, remove data and search the files. Copies of example records are included in the appendix.

Comments on the Prototype System

It should be noted that the Prototype System was developed as an exploratory tool, not as a suggested alternative for the proposed national database of multicultural, intercultural and ethnic education resources and materials. Some fields may be missing and the data descriptions are not as well defined as they would need to be in an operating system. On the other hand, the Prototype System does work and could be used as a model upon which to develop the CCMIE database. The prototype system has some features which may not be available on commercial systems (linking of files, French/English descriptors automatically linked together, etc.).

A number of lessons were learned while developing and using the prototype system:

1) indexing of materials by "non-professionals" is not very satisfactory;
2) different lists could easily be produced, such as
   a) all entries (from either MATERIALS or RESOURCES or both) under a particular code in either Outline of World Cultures or Outline of Cultural Materials;
   b) holdings of a particular Resource Centre;
3) translation of technical material is difficult;
4) the same material can be retrieved in multiple formats (e.g., in a short form for reading on the terminal, single field only, or nicely formatted suitable for a printed document; and,
5) entry and retrieval of records was relatively simple for the naive user, but some training was necessary.

One of the problems with working with a university system is that one must take more responsibility for the development and operation of the system than would be true with a commercial system. Users of university research computer systems come to expect change as a normal way of life, while commercial systems pride themselves on continuity and changes being "invisible" to the user. This results in users of university systems constantly having the newest and most exciting features, but they pay for it in constantly having to be aware that the "system" may change and they may have to change to stay current.

University systems such as the SPIRES system at the University of Alberta can be used by organizations such as the CCMIE for the development and operation of database systems. Since there is no "standard" system for the CCMIE to use, they would need to develop and operate the system themselves. This could be done by contracting the University of Alberta or a private consulting firm to develop the database, and then managing or contracting a consulting firm to operate the system for them. The actual costs of using the database once it was developed on the SPIRES system would probably be significantly cheaper than on a commercial system, but the cost of development and the need for managing the system would be significant.

DISTRIBUTED PROCESSING DATABASE SYSTEMS

Distributed processing database systems are a relatively new development. A distributed processing database system is essentially a network of a number of computers, each of which contains its own database. However, each one "knows" that each of the other computers exists, how to contact them, and how to access information from them. Imagine that the proposed national database was mounted on such a system. Each region (province) might have a local computer which contained the records for the materials and resources in that region. A user in Saskatchewan might ask for information on North American Indians. He would first be given the information from the Saskatchewan region (since that is the computer to which the initial contact

would be made). If this information was inadequate, the Saskatchewan computer could be asked to automatically contact each of the other computers to obtain the information from the other regions. The user would not need to know how to contact the other regions, and in some cases would not even know that other computers were involved.

Distributed processing database systems are so new that they are currently only available on relatively expensive minicomputers. In the near future, such systems will be announced for microcomputers, at which time they may be appropriate for a database such as the CCMIE database.

SUMMARY

In summary, it appears that large mainframe database systems offer advantages that microcomputers do not. These advantages include large amounts of on-line storage, the ability to run simultaneously different and powerful programs for numerous users from many locations, and the automatic production of "backup" copies of data.

The review of commercial operators of database systems which support database services yielded seven systems which had developed packages appropriate for use in managing a bibliographic database: DIALOG; BRS; ONTERIS; CISTI; UTLAS; QL Systems; and Infomart. Of these seven systems, the most promising appears to be QL. Development of the database on a university research system would possibly give more features but would probably need more involvement than the CCMIE wishes to provide.

POSSIBLE COMPUTER SYSTEMS

CHAPTER 8

ALTERNATIVE ORGANIZATION AND OPERATION OF CCMIE DATABASE

In order to establish the feasibility of a national database of multicultural, intercultural and ethnic education resources and materials, a number of alternative possible scenarios for the organization and operation of such a database needed to be identified. Before these alternative scenarios could be identified, a few assumptions, based on the published literature and the results of the questionnaires needed to be made:

Assumption 1

In order for a national database of multicultural, intercultural and ethnic education resources and materials to operate effectively there must be a single set of standards. These would include:

1) adherance to a standardized bibliographic description, and
2) operation of a standardized computer system.

Assumption 2

In order to meet the requirements of Assumption 1, there must be a single authority (e.g. manager) to monitor the operation of the database.

COMPONENTS OF SCENARIOS AND POSSIBLE ALTERNATIVES FOR EACH

Once the assumptions had been identified, the next step was to identify the components of the possible scenarios which might have alternative values. In the identification of these compontents three terms are used consistently:

1) **locally**: each individual or individual agency performs the activity.

2) **regionally**: a single agency in each geographic region performs the activity for all individuals and individual agencies in the region.

3) **centrally**: a single agency performs the activity for all individuals, individual agencies and regional agencies.

Each of the possible components of the scenarios are discussed below with alternative descriptions.

Identification: to find out what materials/persons are being published or developed; can be done locally, regionally, or centrally.

Collection: to buy or acquire the material once it has been identified; can be done locally, regionally, or centrally.

Indexing: to develop bibliographic description, to describe each item (e.g., author, title, publisher, etc.), to analyze for subject content, and perhaps supply an abstract. Must be done with the material in-hand. Can be done either locally, regionally or centrally.

Dissemination: to distribute information on the materials that have been identified (i.e., to let people know of an item's existence); can be done locally, regionally, or centrally.

Loan: to loan material or reproduce for distribution (e.g., photocopy); can be done locally, regionally, or centrally.

Kind of Computer System: Three basic kind of systems can be conceived.

1) Microcomputer system: single microcomputer(s) with all the information in the database held in each. Each system would be independent of the others.

2) Central mainframe: a single large computer which contains all the information on all entries in the database. Such a system could be operated by a commercial database system operation or could be operated by a single central agency. Two possibilities exist in using a central mainframe:

   a) that access to the information in the mainframe would only be available for the central operating agency, or

   b) that access to the information would be available to anyone with a digital communications network (such as Datapac).

3) Distributed Processing: a system whereby individual or regional agencies would maintain their own database on their own computer in a form known to the other computers in the system. Each computer would be able to search its own database for information, and if it could not find it, could automatically search other systems to find the information. Would not need human interference or direction.

Operation of Computer System: Computer systems could be operated either locally, regionally or centrally.

Degree of Centralized Control: Based on Assumption 2 (that some central authority must exist in order to operate a national database) the degree of centralized control could range from low to moderate to high. High centralized control would be where the central agency set bibliographic standards, and had the right to demand that regional or individual agencies contribute as required. Moderate centralized control would be where the central agency set the bibliographic standards, but contributions from regional or individual agencies would be voluntary. Weak central control would occur where some cooperation was agreed upon by all agencies involved, but no forced compliance in any way would occur. It is assumed that in order for a national database to work based on a great deal of local activity, there would need to be a high level of central control.

Material format: types of materials that may be included in the database; can be comprehensive (all print, non-print, audiovisual, artifacts, lists of persons or agencies) standard (print and audiovisual) plus persons (S & P), standard or print-only.

Language: The operational language(s) of the database: (a) all English; (b) all English subject headings with appropriate titles in French; (c) bilingual subject headings with titles in appropriate language (French or English); (d) completely bilingual; (e) bilingual subject headings with title in any language of production.

FEASIBILITY TESTING

Subsequent to the generation of the alternative scenarios, it was necessary to assess the overall value of each of these in order that the more feasible alternatives might be more fully explained and that specific recommendations for a possible national database might be made.

The major areas considered for each alternative relative to its feasibility were: (1) the potential benefits to the various stakeholder groups; (2) the workability of the particular database described in the scenario; (3) the flexibility of the particular scenario; (4) the diffusibility of the particular scenario (its compatibility with and acceptability to those affected by its implementation), and (5) the perceived reliability, over a period of time, of each scenario. Each of these categories, with the exception of "reliability", contained several questions. Altogether twenty-seven questions relating to specific aspects of feasibility were asked concerning each scenario (Figure 2).

The particular stakeholder groups which were identified for consideration when rating each scenario were:

1) the CCMIE;
2) professional Information Specialists;
3) individual, non-specialist users;
4) human Resource Operators;
5) the Federal and Provincial Governments;
6) database Operators; and
7) funding Foundations.

Each of the scenarios was rated according to the feasibility test (Figure 2).

Weightings were assigned to each of the categories in the feasibility test (e.g., potential benefits, workability) and to each item within each category. The mean score for every item for each alternative was used as the raw score for that item, and the weights were assigned according to the weighting matrix (Figure 3). For each alternative scenario the final calculations included a composite score for each of the categories in the feasibility test and a total feasibility score.

ALTERNATIVE ORGANIZATION AND OPERATION OF CCMIE DATABASE

Figure 2

Feasibility Test

Scenario _____

Potential Benefits	*Of No Benefit <-> Highly Beneficial*			
This particular scenario would be of benefit to:				
1. Professional Information Specialists	1	2	3	4
2. Individual, non-specialist users	1	2	3	4
3. The CCMIE	1	2	3	4
4. Human Resource Operators	1	2	3	4
5. The Federal Government/The Provincial Government	1	2	3	4
6. Database Operators	1	2	3	4
Workability	*Strongly Disagree <-> Strongly Agree*			
1. There is evidence that this scenario can provide the anticipated benefits	1	2	3	4
2. The costs (short and long term) of this scenario are reasonable in proportion to the anticipated benefits	1	2	3	4
3. The required human resources are available or obtainable	1	2	3	4
4. In this scenario the roles of the various stakeholder groups are clearly described	1	2	3	4
5. Database operators will find this scenerio workable	1	2	3	4
6. Human resource operators will find this scenario acceptable	1	2	3	4
7. The scenario is clear and easily understood	1	2	3	4
8. The scenario can be operationalized within a reasonable amount of time	1	2	3	4
9. This scenario can be operationalized with comparative ease	1	2	3	4
10. The scenario can be operated on a trial basis for a period	1	2	3	4
11. The results of this scenario can be demonstrated easily and convincingly	1	2	3	4

Figure 2 (Continued)

Feasibility Test

	Strongly Disagree <-> *Strongly Agree*			
Flexibility				
1. This scenario will allow inputting of information in a sufficient number of formats	1	2	3	4
2. This scenario is sufficiently flexible to accommodate changes in the volume of information	1	2	3	4
3. This scenario can accept a large number of requests for information simultaneously	1	2	3	4
4. This scenario can handle information in more than one language	1	2	3	4
Diffusibility	*Strongly Disagree* <-> *Strongly Agree*			
This scenario appears to be congruent with the policies and values of:				
1. The CCMIE	1	2	3	4
2. The Federal Government	1	2	3	4
3. The Provincial Government	1	2	3	4
4. Funding Foundations	1	2	3	4
5. Human Resource Operators	1	2	3	4
Reliability	*Strongly Disagree* <-> *Strongly Agree*			
1. The scenario will operate reliably: it will stand up over time	1	2	3	4

Figure 3

Scoring of Feasibility Test

	Weight of Item1	Weight of Section
Potential Benefits		*2*
1.	3	
2.	3	
3.	3	
4.	3	
5.	2	
6.	2	
Total of Item Scores (T)	*16*	
Section Score = (2 x T / 16)		
Workability		*3*
1.	3	
2.	3	
3.	3	
4.	2	
5.	2	
6.	3	
7.	2	
8.	2	
9.	3	
10.	2	
11.	3	
Total of Item Scores (T)	*28*	
Section Score = (3 x T / 28)		
Flexibility		*2*
1.	2	
2.	2	
3.	2	
4.	3	
Total of Item Scores (T)	*9*	
Section Score = (2 x T / 9)		
Diffusibility		*1*
1.	3	
2.	3	
3.	2	
4.	2	
5.	2	
Total of Item Scores (T)	*12*	
Section Score = (1 x T / 12)		
Reliability		*3*
1.	1	
Total of Item Scores (T)	*1*	
Section Score = (3 x T / 1)		

Though over seventy possible scenarios were identified and tested, it is recognized that this is not an exhaustive compilation. (A brief description of a representative sample of these alternatives is presented in Appendix 3.) From those tested, the following scenarios are discussed in detail. It is felt that these scenarios will demonstrate the arguments used in establishing the feasibility of the possible scenarios.

Local Scenarios

In the first possible scenario[13], "L3", each individual or individual agency would perform the activities of identification, collection, indexing and dissemination of information, as well as the loaning of materials. This system, which is only marginally superior to the existing situation, would generally not fulfill the basic criteria of potential benefit to stakeholder groups, workability, flexibility, diffusibility and reliability.

The main limitation with this scenario is the lack of standardized information with the system. Working as isolated individuals with little or no background in information management systems, most people (who would likely be volunteers) would be unable or unwilling to adhere to rigorous, pre-established standards of bibliographic entry and retrieval; because of this, it is likely that the entire system would deteriorate quite rapidly. Even people who were knowledgeable in this area would find it difficult or impossible to use because of the masses of unstandardized and inconsistent information which would inevitably be entered into the system.

The cost of such a system would be extremely high for several reasons. First, a "moderate central control" implies that some editing would be done by professionals who would, of course, be paid for their services. Secondly, high telephone costs would likely be incurred as users and editors would constantly be phoning each other to clarify terms and information. Lastly, the volunteers and users of the system would have to be thoroughly trained in order to use the system effectively and efficiently. This would result in costs for transportation, accommodation, subsistence and salary

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[13] see Appendix 3 for an illustration of the different features of the scenarios.

time for the trainers.

Although this system would be flexible enough to handle a variety of formats and changes in the volume of materials, information in English only could be accommodated. This is simply because most of the people inputting the information would likely have very limited knowledge of French. A monolingual database would likely prove unacceptable to a federally-funded, national educational database.

A locally-run system would be difficult to operationalize due to the large number of unconnected individuals and agencies that would have to be organized. While the results of this system could be demonstrated easily and convincingly, the system would likely prove to be completely unreliable over time. The major drawbacks of nonstandardization, high cost, limited language capabilities and poor reliability make this scenario a poor alternative.

Regional Scenarios

The second possible scenario is a "regional" one in which a single agency in each geographic region would perform identification, collection, indexing, disseminating and loaning activities for all individuals and agencies within the region. This scenario represents a significant improvement over the previous "local" example.

The main improvements of a regionalized system are that there is some increase in the standardization of information, and the possibility of two languages becomes much more feasible. The general regional scenarios which follow are detailed as "R0", a monolingual database with weak central control; "R1", another monolingual database but operating under a moderate central control; "R2", a bilingual database with moderate central control; and lastly "R3", a bilingual database controlled by a strong central authority.

"R0" is the first regional scenario. Under this system, all functions would be performed by a single agency for the surrounding individuals and agencies; this would provide increased standardization of information, resulting in a somewhat more effective

and efficient operation. The overall benefit to stakeholder groups, however, would be only marginally better than the previously described local scenario for the following reasons.

In its favour, the costs of scenario "R0" would be significantly reduced. A regional authority would lessen the costs of training (including travel, salary, etc.) as well as telephone bills which would accumulate as people sought clarification on the "local" system. However, a major drawback is the *weak* central control, resulting in inconsistent and relatively non-standardized information. Similar to the previous scenario, too many non-specialist individuals (again, probably volunteers) would be responsible for making important decisions regarding the inputting of information: clearly, the human resource operators and database operators would prefer to avoid this by having a stronger central control. Individual volunteers responsible for operating and maintaining the system may also balk at any major increase in the volume of material. Further, because of their limited backgrounds with information management systems, these non-specialists would likely not have the ability to accommodate any language other than English. As a result, this scenario would be unreliable and severely limited in operational acceptability, volume of information and language capability.

The next scenario, "R1", represents a definite improvement over "R0", being generally more beneficial to the stakeholder groups. Like "R0", this scenario would function regionally, but now under a *moderate* central control. Specialized database operators would check, improve and standardize all information, resulting in a much more efficient and effective operation. Because of this, the scenario becomes more workable, flexible and reliable than the others. However, because this database would handle information in only one language, it would probably not be suitable for implementation by a federal agency on a national scale.

Because of its bilingual capability, "R2" becomes an even more viable alternative: it is more congruous with the policies and operations of most stakeholder groups. However, the operation of a bilingual (or, for that matter, a multilingual) database poses many problems. Certain groups, such as the database and human resource operators, may be unwilling or unable to take on the additional responsiblity of a second

language, particularly if they are not paid. In addition, the time and difficulty of operationalizing this system would be increased substantially, simply because the logistics of the system would be far more complex. While this scenario is approximately as flexible as the previous ones, its diffusibility is dramatically increased with the CCMIE, the federal and provincial governments, and funding agencies because of its bilingual capabilities.

The final regional scenario, "R3", is the most acceptable alternative so far. Again, a single agency would be responsible for identifying, collecting, indexing, disseminating and loaning materials and information for its regions. However, its *strong* central control would result in a much more organized, clearly defined, effective and efficient system where paid professionals would process all information. This would eliminate the inability or reluctance that volunteers may have in handling bilingual or increased volumes of information. While the costs for such a system would increase because of the paid staff in each region, the benefits of stability, standardization and accuracy of the database would vastly increase. The overall reliability would also increase because professionals and specialists would be hired to maintain a high quality, highly controlled system.

Central Scenarios

In order for any national database to be successful, a strong central authority must oversee the entire operation. Strong central control would bring benefits of standardization, knowledgeable professionals to operate the database, and greater long-term effectiveness and efficiency of the system.

Strong Central Control

The "strong central control" scenarios which follow are examined in light of their overall feasibility. The main difference between them is their regional/central activities, the type of computer system which they employ and the output format

and frequency.

The first "centralized" scenario is "C1". Under this system, all identification, collection, indexing, dissemination and loaning of materials and information would be conducted under the aegis of a central authority. The combination of bilingualism, centralization and good control would make the scenario generally more appealing to the stakeholder groups. However, because professional information specialists would have to be hired -- and paid accordingly -- the cost of centralized systems would be comparatively high (this is in contrast to the local and regional scenarios where non-specialist volunteers would be responsible for the maintenance and operation of the system). Human resources and database operators, since they would be paid, would certainly be able and willing to support the system; for this reason also, the scenario could quickly be operationalized, but with some logistical difficulties. It could also be easily piloted before being accepted on a "permanent" basis.

"C1" is quite flexible, able to accommodate changes in both format and volume of information, as well as being able to handle a large number of simultaneous requests for information. It could accommodate both French and English information, and offer information in either microform or print format. Because of this, it would likely be viewed fairly favourable by the CCMIE, governments, funding agencies and human resource operators. The system would likely work quite reliably, assuming that adequate funds are allocated to maintain it.

Scenario "C2" is identical to this scenario except that, here, information could be available on-line as well as in microform or printed format. While this proves more beneficial to certain stakeholder groups (particularly the information specialists who would more likely be able to take advantage of this feature), network access would inevitably result in higher costs incurred by constant computer use. Thus, while scenario "C2" is more efficient, effective, up-to-date and (therefore) beneficial, it is also considerably more expensive.

Moderate Central Control

Scenario "C3" is characterized by regional identification, collection, indexing and loan of materials and information, but being disseminated centrally under a moderate central control. Such a system would not be significantly more beneficial to the stakeholder groups.

A major problem with this scenario is that suppliers of materials would likely be less willing to loan their materials over great geographic distances, preferring instead to circulate them locally, regionally or provincially. Another problem would exist with the moderate central control which, although reducing operational costs by the use of volunteers, would result in less standardized information. In addition, the volunteer human resource operators may not be able or willing to handle information in French.

Nevertheless, this scenario would be quite workable, given the above limitations. The central mainframe computer would increase the system's flexibility, being able to handle a variety of input formats, changes in the volume of information and able to accept numerous simultaneous requests for information. It would appeal to the CCMIE, the federal and provincial governments and funding foundations (human resource operators, however, may balk at being required to handle information in French). It would be quite reliable over time.

The following scenario, "C4", is the best of all the systems which have been discussed so far, and the one against which all other systems must be measured. Under this example, the identification of information and materials would be done regionally, while all other activities (collection, indexing, disseminating and loaning) would be handled centrally. This would, in effect, establish an excellent clearinghouse for information and materials.

Clearly, this scenario would be highly beneficial to professional information specialists, nonspecialists, human resource operators, the federal and provincial governments, and database operators.

The CCMIE would also rank this alternative highly, although, because of cost, its appeal would drop slightly. However, this scenario, as opposed to all those discussed so far, would meet virtually every criteria for a successful and acceptable multicultural and intercultural education database.

This system is highly workable. The human resources required to operationalize and maintain this system are available and obtainable; database operators and human resource operators would both find this scenario highly acceptable. The system could be operationalized with comparative ease, and could easily be run on a trial basis. Not surprisingly, the only drawback is cost: because of this scenario's strong central control, paid professionals would be hired to operate the system. However, any extra costs incurred would be offset by the high quality, standardized and consistent handling of information. In addition, information could be input in a sufficient number of formats; changes in the volume of information could be accommodated; and a large number of requests for information could be handled simultaneously. However, for the reasons previously stated, this database would handle information in both English and French, though not in heritage languages.

As such, this scenario would be congruent with the policies and values of the CCMIE, the federal and provincial governments, funding foundations and human resource operators. It would also operate reliably and would stand up over time.

Thus, scenario "C4" is unequivocally the best alternative. Its strong central control and central mainframe system would result in information which was accurate, standardized, up-to-date, and available in a variety of output formats. Both French and English could be accommodated, and the personnel required to operationalize and maintain the system would be both available and agreeable to working with this system. It would be maximally beneficial and acceptable to all interest groups. In short, this scenario presents the most effective and efficient alternative for a database on multicultural and intercultural education.

ALTERNATIVE ORGANIZATION AND OPERATION OF CCMIE DATABASE

The final scenario which will be discussed in detail is "C5". This system is identical to "C3", discussed previously, except that in "C5", the degree of central control would now be strong rather than moderate.

Like "C3", scenario "C5" would encounter the potential problem of individuals being unwilling to loan materials over wide geographic areas, thus posing difficulties in establishing a truly comprehensive and accessible database. In its favour, however, the strong central control of this system would result in accurate, standardized information, with information in English and French being produced in a variety of formats.

Because the operators of this system would be paid professionals, the human resource operators and database operators would prefer this system. However, the extra costs incurred therein would make this scenario less appealing to the CCMIE. In terms of workability, this system would not rate as highly as "C4" (the scenario discussed immediately previously), particularly in regards to the obtainability or availability of human resources, and the time and ease with which the system could be operationalized. Its flexibility, however, would rank highly because its paid, specialized staff would be able to accommodate the inputting of information in a variety of format, changes in volume and the handling of numerous simultaneous requests for information. Again, the database would operate on a bilingual basis.

This scenario would be generally congruent with the policies and values of all interest groups, with the exception of the CCMIE. As we have seen, a strong central control implies paid staff; this, in turn, would raise the overall costs of this scenario over a weak or even a moderate central control. However, this would again be offset by the resulting higher quality of the system.

Finally, this scenario would prove to be quite reliable, effective and efficient.

SUMMARY

Having taken into account all the numerous features of various possible systesm, scenario "C4" appears to be the most viable alternative. While this system would cost somewhat more, there is no doubt that the long-term benefits of workability, flexibility, diffusibility and reliability would increase dramatically. No other system can compare with "C4". It is our recommendation that the CCMIE consider this scenario as the most acceptable and cost-effective database on multicultural and intercultural education.

PART III

RECOMMENDATIONS AND CONCLUSION

CHAPTER 9

RECOMMENDATIONS

Throughout this report the literature, the analysis of the questionnaire data and finally the feasibility test itself have led to the final recommendations of the study. The recommendations fall into six categories: (1) standards and central authority; (2) choice of computer system; (3) language of the database; (4) database content; (5) operation; and (6) finance. It should be understood that these categories are not mutually exclusive -- the recommendations in one will affect the viability of those in another. We have not always recommended one best answer in each category for in some cases there are several equally viable alternatives from which to choose. The rationale for each alternative is given so that the CCMIE may choose the combination of alternatives which best suit their organizational and fiscal objectives.

STANDARDS

Recommendation 1: There must be a single set of standards for (a) bibliographic description and (b) for the operation of the entire computer system.

Recommendation 2: There must be a single authority to manage the operation of the database.

Stated as assumptions in Chapter 8, the above two points require reiteration as recommendations since they are the basis for the operation of a national database.

CHOICE OF COMPUTER SYSTEM

Recommendation 3a - A single centralized computer system would be the best alternative for operation of the database

This recommendation is to a great extent an outgrowth of Recommendation 1 combined with the need to develop a **national** database. A national database implies that all data should be readily available to anyone, anywhere in the nation. The problem with maintaining separate databases in different parts of the country is that it is difficult, if not impossible, to maintain a single set of standards. Without a single set of standards, integration of regional data into a single national database would be impossible. A single system would provide the best access to information. Various sets of standards have been developed for national databases before, and during the development of the prototype system an initial set of standards for the CCMIE database was developed based on information received from a number of sources (Appendix 6).

Recommendation 3b - The CCMIE database should be developed on a central timeshared mainframe computer

The choice of a single centralized computer system still leaves the question of whether that computer system should be a microcomputer or a large timeshared mainframe computer system. Chapter 7 of this report discussed a number of currently available microcomputer systems and large timeshared mainframe systems.

A "stand alone" microcomputer system seems, at first, to be a reasonable alternative. The majority of the users indicated that they would prefer a printed index to on-line access; a microcomputer system can produce printed indices. However, an examination of the existing microcomputer systems showed that even the largest system would have difficulty storing the number of records which would probably be in the CCMIE database at one time. Also, an existing microcomputer database system which could handle resource agencies and people at the same time as they handle

materials could not be found. The prospect of "owning your own system" is enticing to many, but owning your own system has many drawbacks. If one owns and operates their own microcomputer system, there is a need for some skill to operate the computer system properly (with backup procedures, etc.), and someone must know how to change the system if that becomes necessary. Finally, there is a capital output necessary to purchase a microcomputer and the database program. Such costs would not be recoverable if the system was found to be inadequate.

On the other hand, we were able to find a number of commercial timeshared system operators who could demonstrate similar capabilities to those needed by the bibliographic portion of the CCMIE system. One commercial operator (QL Systems) and the prototype system developed by the class on the University of Alberta's computer under the SPIRES system handle bibliographic and resource person and agency databases. Development of the database on a large timeshared computer system means that little or no capital cost need be incurred, the system can be discontinued at any time, and the traditional computer operation and maintenance procedures would be carried out by the professional operations staff at the mainframe site.

This argument is fallacious: because the majority of users wanted a printed index rather than on-line access, there is no need for on-line access. Even though the majority of respondents preferred a printed index, the information specialists wanted on-line access. With the growth of systems designed to give on-line access to commercial bibliographic databases to computer hobbyists and others who are not information specialists (e.g., BRS After-Dark, and Knowledge Network), it is expected that the number of non-specialist users wishing on-line access to the proposed CCMIE database would increase. While a standalone microcomputer can offer printed indices, large mainframe timeshared systems can offer both printed output and on-line access through networks like Datapac.

Recommendation 3c - The CCMIE should contract with QL Systems to develop and operate the proposed database

Two types of large mainframe computer systems were examined: those operated as commercial database systems and those operated as university research systems. A prototype of the CCMIE database was generated on the University of Alberta's Research computer system (Appendix 6). The proposed CCMIE database could be mounted and operated on either a commercial system or on a research system. Of the commercial systems, QL Systems has demonstrated that they have the capability to mount databases which would contain both bibliographic materials and resource person and agencies. Examples of these databases are given in Appendix 5. QL Systems has also given the following suggestion on how the database could be developed and supported:

> The procedure which has worked best for QL and for database sponsors whose databases are supported by QL is as follows. QL will build the database from machine-readable copy which you will supply. We will write the necessary programs to convert the data to format which can be read by the QL programs, and we will format the database to a display style to be chosen by you. We will operate the database for an experimental period of a year or two without any cost to you for creating, maintaining, updating, or storage of the database. We will charge all users of the database for searches, and for the cost of printing retrieved documents at our high-speed printer in Kingston, Ontario.
>
> During the experimental period, we will assess the level of use which the database can secure. If QL concludes that the database can pay its own way through usage, we will continue to operate it at no cost to you other than usage charges.
>
> From the outset, QL will pay to you a royalty of 10% of all billings for use of the database. Royalties are not paid for searches performed by our programming staff or marketing staff when testing or demonstrating the database. We will also supply you with monthly statistics to enable you to assess the level of use we are achieving, and the types and locations of users accessing your database. (Rintoul, 1983)

While there is no mention of it in this letter, QL indicated that if, after the trial period, QL decides that the database will not pay its own way through usage, they will provide a copy of all the records on magnetic tape to the sponsoring organization.

In a follow-up letter, QL gives a recommendation for entering materials and resources from regional centres:

We believe the QL High Speed package described in our literature would be

> especially suited to a project such as yours since it would allow operation at peak speeds, provide you with the 'full screen edit' feature which make it very easy to correct typing errors, and would provide Block Mode operation which is especially useful for the retrieval system.
>
> We would install a high speed package in each of your five regions, including the office where the project co-ordinator would be located. QL's high speed network is now available in Halifax, Montreal, Ottawa, Kingston, Toronto, Winnipeg, Calgary, Edmonton, Vancouver and Victoria, and perhaps soon in Regina. In each city, QL arranges for the installation of a 9600 baud circuit, and pays for the ongoing charges for these circuits. We provide an IBM 3101 Block Mode terminal and printer, as well as all necessary modems, cables, etc. (Rintoul, 1984)

This arrangement could be a very attractive benefit for volunteer libraries operating in each region since the terminal could be used for searching other databases and other commercial systems via the connection to the Datapac network.

QL Systems does not normally provide printed copies of their databases, but in conversation, Ruth Rintoul indicated that a specific output format could be written which would output the contents of the database to magnetic tape in a form which could be used as direct input by commercial printing houses.

The proposed CCMIE database could be developed and delivered on the University of Alberta's SPIRES system following a model similar to that of the prototype system. This could be done on a contract basis (costs of using this system are included in Appendix 6). The final SPIRES database might have more capabilities than those offered by QL Systems, but while the cost of actual searching and the "connect time" charges might be cheaper, the development costs and the amount of monitoring which the CCMIE would need to provide would certainly override any such savings.

LANGUAGE

Recommendation 4: Heritage languages should not be included in the database.

For a national database of multicultural materials, the inclusion of heritage languages is an attractive option, but the processes of translation and transliteration mean additional expense resulting from increased human expertise, problems of standardization, and lack of computer systems that can accommodate translation/transliteration and non-Roman characters.

There are two acceptable alternatives for the language of the database. These are given in order of desirability.

Recommendation 5a: The database can be partially bilingual with titles of materials listed in the language of production (i.e., French title given in French only), accompanied by a fully bilingual thesaurus so that subjects may be searched in either French or English.

If no abstracts are added and titles are given in the original language, no translation is required. This would save both time and money. A bilingual thesaurus would have to be constructed through the auspices of the central authority. The problem will be the choice of a single thesaurus (such as HRAF, see Chapter 5 "Special Considerations"). Once the thesaurus has been constructed or chosen, it must be translated in order to be useful for a bilingual national database.

Recommendation 5b: The database can be basically English (i.e., an English only thesaurus) but with titles given in the language of production.

This is a viable alternative if, for reasons of expense, it is not possible to develop a bilingual thesaurus.

It is not advisable in either of these alternatives to translate titles because of the issues of expertise, cost and consistency discussed in Chapter 6.

DATABASE CONTENT

Recommendation 6: The database should list all types of materials regardless of their format, as well as resource people and agencies.

This recommendation is clearly supported by the user survey (see Chapter 5). However, it should be understood that the handling, indexing and loaning of non-print material and the listing of resource people will be more complicated than the handling of only print materials (see Chapter 6). However, listing print materials only would drastically limit the usefulness of a database of education materials.

OPERATION AND IMPLEMENTATION

There are three viable alternative recommendations on how to accomplish the identification, collection, indexing and loan of materials. These are discussed in order of most to least effective. The CCMIE will need to select one based on what they can actually arrange and organize nationally and how much money they can afford to spend.

Recommendation 7a: Collecting, indexing, editing, disseminating and loaning of materials, as well as operating the system, should be done through one central agency or clearinghouse; identification of materials would be done regionally.

This recommendation is strongly supported by the survey conducted for this study and by the literature (see Chapter 5 and 6). A clearinghouse is the best way to ensure the

organized development and the consistent, continued operation of the database and the best service to the users. Regional identification of materials and people by existing organizations and libraries would ensure reliable and comprehensive coverage.

Advantages:

- materials will actually exist to support the database and be consolidated in one location. This facilitates ready access (users will know where to locate materials listed in the database) and simplifies the loan of materials
- all expertise needed to handle and index materials and to operate the system will be together for the most efficient and cost effective operation
- no duplication of effort or expertise will occur since all functions would be conducted in only one location
- adherence to standards and control of input can be easily accomplished
- continued operation does not rely on fiscal constraints or the goodwill of volunteers

Disadvantages:

- requires permananent staff
- requires provision of office space and material storage/shelving space
- requires internal (office) mechanism for physical organization of materials (e.g., call numbers)
- requires financial outlay for buying materials

Recommendation 7b: Identifying, collecting, indexing and loaning of materials could be done regionally with partial subsidization.

Editing and operating the central computer system would be performed centrally. The regions suggested are (a) Maritimes; (b) Quebec; (c) Ontario; (d) Prairies and NWT; (e) British Columbia and Yukon.

What is needed in each region is an existing library that already specializes or has a particular interest in multicultural and ethnic materials, which will offer to assist the CCMIE in the development and continued operation of the database. It is imperative, however, that such people be committed to the project. Acting as a

regional centre, a library may require additional staff or expertise to carry-out the work. The cost of collecting materials may prove another financial burden for the libraries. In order to gain their continued commitment and to exercise some control over each agency's contribution, the CCMIE must provide some financial support. This is a co-operative arrangement which should benefit both agencies and the CCMIE. It is anticipated that the stumbling block in this arrangement will be the loan of materials (see Chapter 6).

Recommendation 7c: Identifying, collecting, indexing and loaning of materials could be done regionally on a strictly volunteer basis.

In this instance, more than the five centres suggested above would be involved. The organization and control would be looser and the quality of data in the database would be difficult to maintain. A number of agencies indicated they would be willing to assume the responsibility for identifying, indexing, etc., but applied *caveats* to their offers (see Chapter 7). Since the loan of material was the area of most concern, it is recommended in this, the least complicated of the three operational alternatives, that loaning not be part of the responsibilities undertaken. Therefore, the database would be only a mechanism for finding out about the existence of materials. To obtain materials, database users would need to use the existing interlibrary loan channels, not always a satisfactory service for obtaining non-print items.

FINANCE

Recommendation 8: The initial set-up and development of the database, including the establishment of parameters, the rules of operation, the procedures of operation, and the design of the system, should be contracted out to a group of consultants.

Because the CCMIE is a national organization with members spread across the country, an organized and knowledgeable group working on their behalf and dedicated to the establishment of the system is necessary if the database is to be realized. It is too large and too complex a project for a volunteer effort to succeed. It is suggested that a small group of consultants with skills in the area of computer systems and library systems could design and set-up this national database.

CHAPTER 10

CONCLUSION

The investigations of this study have established that it is indeed feasible to develop, implement and operate a national database of multicultural, intercultural and ethnic education resources and materials. The computer technology exists to handle such information and commercial bibliographic computer systems of reputable standing are not only available to support such an effort, but have demonstrated an interest in doing so. The potential for use of the database by school systems, professional librarians and multicultural groups and specialists is clearly documented by the positive responses to the survey. The most difficult aspect of mounting such a venture will be the coordination of the human resources to identify, collect and index materials. However, with some financial support for these functions and a good organizational structure, this becomes quite feasible.

The interest in high-quality access to multicultural and ethnic materials, and the manpower and expertise necessary to develop a national database to provide such access, clearly exist. To implement and maintain such a project would provide a much-needed support in the understanding and preservation of our Canadian heritage.

CONCLUSION

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Glossary of Terms

BOOLEAN LOGIC: A system of using algebraic notation to express logical relationships (Chandor 1981:27).

COMPUTER: A device capable of solving problems and manipulating data by accepting data, performing prescribed operations (mathematic or logical) on the data, and supplying the results of the operations (Spencer 1980:33).

DATA: A set of characters, words or signals to which a significance can be assigned.

DATA BASE: A collection of data organized to facilitate maintenance, query, and/or reporting.

DATA BASE MANAGEMENT SYSTEM: A method of managing and manipulating data in a data base.

DATA ELEMENT: a single data field in a record,(e.g., a student's name).

DATA RECORD: all data related to a unique identifier,(e.g., a student's record).

FIELD: A group of related characters treated as a unit and which serve as an item in a record.

FILE: The FILE is the largest accessible unit. A FILE consists of a number of SUBFILES which contain related data, but which exists for specific purpose.

FIXED OR CONTROLLED VOCABULARY: Terms have a carefully selected definition in an effort to avoid several subjects falling together under one term.

FORMAT: Once some records have been found, the data will be presented to the user in a particular form: a synonym for a data display.

FREE VOCABULARY Use of terms or descriptors that are not rigidly defined.

"GATEWAY" MODE: A way to gain entrance into a computer system from a second computer system; a connection that allows communication between two computer systems.

HARDWARE: The electric, electronic, and mechanical equipment used for processing data (Sippl 1982:226).

INDEX: Data fields can be used to create an index much like the index in a book. This enables the user to quickly find the records associated with the terms in the index.

INFORMATION: Selected data that have been processed to make them meaningful

(Hussain 1973:81).

INFORMATION MANAGEMENT SYSTEM: A frequently used synonym for a DATA BASE MANAGEMENT SYSTEM.

MENU-DRIVEN A method for entering data in a database which provides the operator with a variety of options. The operator selects the desired option and a new selection of options is displayed on the screen (Chandor 1981:66).

MODEM: A coupling devise that connects one system to another via the use of the telephone.

NAPLPS DECODER TERMINALS: Reception and transmission apparatus that will decode information. NAPLPS is a trade name formerly known as the Telidon System put out by the commercial company, Infomart.

ON-LINE: Under the control of a central processor; equipment or systems in interactive communication as well as terminal equipment connected to a transmission line (Chandor 1981:133).

RECORD: All the information associated with a single entry in the database.

USER: A person authorized to enter data or commands to a computer system.

VIDEOTEX SYSTEM: A system that transmits or receives information via images on a screeen. maximum security and a simple means of communication.

MAINFRAME: A computer system having input, memory arithmetic/logic control, secondary storage and output functions. These are generally large commercial systems.

MICROCOMPUTER: A complete small computer, having the same basic functional parts as a mainframe but generally having reduced memory and storage capabilities.

SOFTWARE: [illegible]ious programming aids that are frequently supplied by the manufacturers to facilitate the purchaser's efficient operation of the system (Sippl 1982:501).

Appendix 1 - Questionnaires

This appendix contains copies of the questionnaires sent to the different respondent groups. The frequency of response to each item is indicated in *italics.*

CANADIAN COUNCIL FOR
MULTICULTURAL AND INTERCULTURAL
EDUCATION

A Survey Regarding the Feasibility
of Establishing a National Database in
Multicultural, Intercultural and Ethnic Education

This survey is being conducted by the Department of Educational Administration, University of Alberta as part of a larger study which is being carried out on behalf of the Canadian Council for Multicultural and Intercultural Education.

>This survey was sent to 165 principals across Canada.

1 _ _ _ _ _ _ _

National Database Feasibility Study

The questions on the following pages are being asked with a view to obtaining information regarding the feasibility of establishing a national database in multicultural, intercultural and ethnic education. Such a database could include listings of materials and resources dealing with all levels of education, pre-school through adult, and which could be used both formally or informally.

Please answer the following questions as completely as possible by checking the appropriate blank(s) and return the questionnaire by Nov. 9, 1983. Thank you.

For Office Use Only

Card 1

1. Would a national database listing materials and resources in multicultural, intercultural & ethnic educ. be of use to your school? 11
   Yes *77* No *42*

   IF YOU ANSWERED NO TO THE ABOVE QUESTION, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

2. If such a national database existed, what type(s) of multicultural, intercultural and ethnic materials and resources would your school want included?

   a. printed materials *81* 12
   b. curriculum guides *65* 13
   c. microform *8* 14
   d. film/filmstrips *76* 15
   e. slides *50* 16
   f. photographs *48* 17
   g. videotape/disc *62* 18
   h. audiotape/disc *31* 19
   i. computer diskettes *50* 20
   j. artifacts, eg. art/costumes *50* 21
   k. names of resource persons or organizations *67* 22

3. Assuming a national database contains multicultural, intercultural and ethnic materials in many different languages, would members of your school staff search such a database in

   a. English? Yes *80* No *1* 23
   b. French? Yes *25* No *31* 24
   c. the language of production (if not English or French)? 25
      Yes *8* No *28*

For Office Use Only

4. How should the data in this national database be made available? (Indicate in order of priority, (1) being the highest.)

		1st	2nd	3rd	
a.	printed index	68	11	1	26
b.	online search	7	12	28	27
c.	request to a national information centre	12	21	14	28

5. Assuming a printed index were available how often should it be produced?

a. monthly *8* 29

b. quarterly *25* 30

c. semi-annually *25* 31

d. annually *29* 32

6. If there were a fee for access to a national database would you be willing to pay for:

a. printed index? Yes *53* No *24* 33

b. online search? Yes *15* No *36* 34

c. request to a national information centre? Yes *25* No *26* 35

7. In principle, would you be willing to pay a fee to obtain a copy of materials listed in the national database? 36
Yes *58* No *21*

8. Do members of your school staff presently search:

		Yes	No	
a.	Canadian Education Index	17	56	37
b.	Current Index to Journals in Education	24	52	38
c.	Resources In Education	26	49	39
d.	ONTERIS	0	63	40
e.	SOCSCAN	0	63	41
f.	CANOLE	0	63	42
g.	DIALOG	1	62	43
h.	SDC	0	63	44
i.	BRS	0	63	45

For Office Use Only

9. What access does your school presently have to computer systems? (Check each applicable answer) 46

a. no access *25* 47

b. access to microcomputer *57* 48

c. access to a mini or mainframe computer *7* 49

d. access to microcomputer or terminal with telephone connection *3* 50

e. online access to digital telecommunication network *1*

10. If in the next year you are changing your access to computer systems, which of the following do you intend to acquire? (Check each applicable answer) 51

a. not applicable *51* 52

b. access to microcomputer *9* 53

c. access to a mini or mainframe computer *0* 54

d. access to microcomputer or terminal with telephone connection *5* 55

e. online access to digital telecommunication network *2* 56

f. other (please specify)_____ *0* 57

11. Have staff at your school produced materials dealing with multicultural, intercultural and ethnic education?

Yes *19* No *62*

IF YOU ANSWERED NO TO THE ABOVE QUESTION. YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

12. Indicate the form(s) in which these materials exist 58

a. printed materials *17* 59

b. curriculum guides *4* 60

c. microform *0* 61

d. film/filmstrips *5* 62

e. slides *6* 63

f. photographs *7* 64

g. videotape/disc *4* 65

h. audiotape/disc *1* 66

i. computer diskettes *1* 67

j. artifacts, eg. art/costumes *5* 68

k. lists of resource persons or organizations *4*

For Office Use Only

13. Would you be willing to contribute information on these materials to a national database on multicultural, intercultural and ethnic education? 69
Yes *16* No *3*

14. Recognizing there may be some materials you could not lend or duplicate, would you in principle be willing to loan or duplicate materials listed in the national database to individuals or organizations outside your school system? 70
Yes *18* No *1*

ANY ADDITIONAL INFORMATION AND/OR COMMENTS WOULD BE APPRECIATED.

THANK YOU FOR YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT IN THE STAMPED, SELF-ADDRESSED ENVELOPE BY NOV. 9, 1983.

CANADIAN COUNCIL FOR MULTICULTURAL AND INTERCULTURAL EDUCATION

A Survey Regarding the Feasibility of Establishing a National Database in Multicultural, Intercultural and Ethnic Education

This survey is being conducted by the Department of Educational Administration, University of Alberta as part of a larger study which is being carried out on behalf of the Canadian Council for Multicultural and Intercultural Education.

>This survey was sent to 67 superintendents across Canada.

2 _ _ _ _ _ _ _ _

National Database Feasibility Study

The questions on the following pages are being asked with a view to obtaining information regarding the feasibility of establishing a national database in multicultural, intercultural and ethnic education. Such a database could include listings of materials and resources dealing with all levels of education, pre-school through adult, and which could be used both formally or informally.

Please answer the following questions as completely as possible by checking the appropriate blank(s) and return the questionnaire by Nov. 9, 1983. Thank you.

For Office Use Only

Card 1
11

1. Would a national database listing materials and resources in multicultural, intercultural and ethnic education be of use to your school system?
   Yes *26* No *4*

IF YOU ANSWERED NO TO THE ABOVE QUESTION, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

2. If such a national database existed, what type(s) of multicultural, intercultural and ethnic materials and resources would your school system want included?

12

a. printed materials *27* 13

b. curriculum guides *23* 14

c. microform *4* 15

d. film/filmstrips *23* 16

e. slides *17* 17

f. photographs *14* 18

g. videotape/disc *24* 19

h. audiotape/disc *10* 20

i. computer diskettes *18* 21

j. artifacts, eg. art/costumes *14* 22

k. names of resource persons or organizations *24*

3. Assuming a national database contains multicultural, intercultural and ethnic materials in many different languages,:

a. should each item in such a database be searchable in 23

1) English? Yes *29* No *0* 24

2) French? Yes *20* No *3* 25

3) the lang. of prod. (if not English or French)?
Yes *10* No *10*

For Office Use Only

b. would you or members of your school system search such a database in

1) English? Yes 27 No 0 — 26

2) French? Yes 13 No 4 — 27

3) the lang. of prod. (if not English or French)? Yes 5 No 12 — 28

4. How should the data in this national database be made available? (Indicate in order of priority, (1) being the highest.)

	1st	2nd	3rd	
a. printed index	21	4	2	29
b. online search	5	3	11	30
c. request to a national information centre	8	10	4	31

5. If there were a fee for access to a national database would you be willing to pay for:

a. printed index Yes 24 No 3 — 32

b. online search Yes 9 No 9 — 33

c. request to a national information centre Yes 13 No 8 — 34

6. Assuming a printed index were available how often should it be produced?

a. monthly 1 — 35

b. quarterly 2 — 36

c. semi-annually 15 — 37

d. annually 12 — 38

7. In principle, would you be willing to pay a fee to a regional or national information centre in order to obtain materials listed in the national database? Yes 24 No 2 — 39

8. Do you or members of your school system presently search:

	Yes	No	
a. Canadian Education Index	19	4	40
b. Current Index to Journals in Education	21	4	41
c. Resources In Education	13	8	42
d. ONTERIS	5	12	43
e. SOCSCAN	0	14	44
f. CANOLE	0	14	45
g. DIALOG	1	13	46
h. SDC	0	14	47
i. BRS	1	14	48

For Office Use Only

9. What access do you presently have to computer systems? (Check each applicable answer) 49

a. no access 2 50

b. access to microcomputer 27 51

c. access to a mini or mainframe computer 8 52

d. access to microcomputer or terminal with telephone connection 9 53

e. online access to digital telecommunication network 1

10. If in the next year you are changing your access to computer systems, which of the following do you intend to acquire? (Check each applicable answer) 54

a. not applicable 12 55

b. access to microcomputer 3 56

c. access to a mini or mainframe computer 2 57

d. access to microcomputer or terminal with telephone connection 6 58

e. online access to digital telecommunication network 0 59

f. other (please specify)_____ 0

In developing and maintaining a national database, four major considerations arise: a) who would identify the appropriate material; b) who would collect the appropriate material; c) who would be responsible for the indexing of these materials; d) from what agency would one obtain materials listed in the national database.

11. Who should identify the materials and resources for this national database? (Indicate in order of priority; (1) being the highest.)

	1st	2nd	3rd	
a. individuals and individual agencies	7	2	11	60
b. a number of regional agencies	4	14	2	61
c. a central agency	17	2	3	62
d. other (please specify)_____	0	0	0	63

12. Who should collect the materials for this national database? (Indicate in order of priority; (1) being the highest.)

	1st	2nd	3rd	
a. individuals and individual agencies	4	5	10	64
b. a number of regional agencies	5	13	3	65
c. a central agency	19	2	5	66
d. other (please specify)_____	1	0	0	67

For Office Use Only

13. Who should index the materials and resources for this national database? (Indicate in order of priority; (1) being the highest.)

		1st	2nd	3rd	
a.	individuals and individual agencies	2	1	14	68
b.	a number of regional agencies	1	16	1	69
c.	a central agency	25	1	2	70
d.	other (please specify)_____	0	0	0	71

14. Who should be responsible for distributing, loaning, reproducing, etc. materials listed in the national database? (Indicate in order of priority; (1) being the highest.)

		1st	2nd	3rd	
a.	the individual or individual agency holding the materials	1	1	14	72
b.	a number of regional agencies	4	17	14	73
c.	a central agency	23	2	1	74
d.	other (please specify)_____	0	0	0	75

15. Do you presently hold materials dealing with multicultural, intercultural and ethnic education? 76

Yes 23 No 6

16. Do you presently produce mat. dealing with multicultural, intercultural and ethnic education? 77

Yes 11 No 18

IF YOU ANSWERED NO TO THE ABOVE TWO QUESTIONS, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

17. Is information regarding the materials you hold in this area presently available through:

a. online access? 2 78

b. computer output microform? 0 79

c. printed index? 5 80

Card 2

d. card catalogue? 7 11

e. other (please specify)_____ 8 12

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18. Indicate the form(s) in which these materials exist

a. printed materials *19* 13

b. curriculum guides *14* 14

c. microform *2* 15

d. film/filmstrips *8* 16

e. slides *11* 17

f. photographs *6* 18

g. videotape/disc *6* 19

h. audiotape/disc *4* 20

i. computer diskettes *1* 21

j. artifacts, eg. art/costumes *6* 22

k. lists of resource persons or organizations *5* 23

19. Would you like to have the materials you produce in multicultural, intercultural and ethnic education listed in a national database? 24

Yes *16* No *3*

20. In principle, would you be willing to index the materials you produce for inclusion in a national database in multicultural, intercultural and ethnic education? 25

Yes *16* No *2*

21. In principle, would you be willing to provide one copy of each title that you produce in multicultural, intercultural and ethnic education to a national information centre to be indexed in a national database? 26

Yes *18* No *1*

22. Would you be willing to contribute information on your present holdings to a national database on multicultural, intercultural and ethnic education? 27

Yes *17* No *1*

23. Would you be willing to contribute information on new acquisitions to a national database on multicultural, intercultural and ethnic education? 28

Yes *18* No *0*

24. Recognizing there may be some materials you could not lend or duplicate, would you in principle be willing to loan or duplicate materials identified in the national database to individuals or organizations other than your normal clientel? 29

Yes *12* No *6*

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25. In principle, would you be willing to identify materials and resources other than your own acquisitions for inclusion in a national database on multicultural, intercultural and ethnic education? 30
Yes *15* No *2*

26. In principle, would you be willing to collect materials for inclusion in a national database on multicultural, intercultural and ethnic education? 31
Yes *14* No *4*

27. In principle, would you be willing to index materials and resources for inclusion in a national database on multicultural and intercultural education? 32
Yes *12* No *6*

28. In principle, would you be willing to act as a distribution/lending etc. agency for materials listed in the national database? 33
Yes *8* No *9*

ANY ADDITIONAL INFORMATION AND/OR COMMENTS WOULD BE APPRECIATED.

THANK YOU FOR YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT IN THE STAMPED, SELF-ADDRESSED ENVELOPE BY NOV. 9, 1983.

CANADIAN COUNCIL FOR MULTICULTURAL AND INTERCULTURAL EDUCATION

A Survey Regarding the Feasibility of Establishing a National Database in Multicultural, Intercultural and Ethnic Education

This survey is being conducted by the Department of Educational Administration, University of Alberta as part of a larger study which is being carried out on behalf of the Canadian Council for Multicultural and Intercultural Education.

>This survey was sent to 130 librarians across Canada.

3 _ _ _ _ _ _ _

National Database Feasibility Study

The questions on the following pages are being asked with a view to obtaining information regarding the feasibility of establishing a national database in multicultural, intercultural and ethnic education. Such a database could include listings of materials and resources dealing with all levels of education, pre-school through adult, and which could be used both formally or informally.

Please answer the following questions as completely as possible by checking the appropriate blank(s) and return the questionnaire by Nov. 9, 1983. Thank you.

For Office Use Only

Card 1
11

1. Would a national database listing materials and resources in multicultural, intercultural and ethnic education be of use to your organization?
   Yes *57* No *32*

IF YOU ANSWERED NO TO THE ABOVE QUESTION. YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

2. If such a national database existed, what type(s) of multicultural, intercultural and ethnic materials and resources would your organization want included?

   12
   a. printed materials *60*
   13
   b. curriculum guides *37*
   14
   c. microform *42*
   15
   d. film/filmstrips *41*
   16
   e. slides *38*
   17
   f. photographs *34*
   18
   g. videotape/disc *40*
   19
   h. audiotape/disc *35*
   20
   i. computer diskettes *35*
   21
   j. artifacts, eg. art/costumes *23*
   22
   k. names of resource persons or organizations *54*

3. Assuming a national database contains multicultural, intercultural and ethnic materials in many different languages,:

   a. should each item in such a database be searchable in

      23
      1) English? Yes *61* No *0*
      24
      2) French? Yes *46* No *6*
      25
      3) the lang. of prod. (if not English or French)?
      Yes *26* No *22*

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b. would you or members of your organization search such a database in

1) English? Yes *61* No *0* 26

2) French? Yes *27* No *19* 27

3) the language of prod.(if not English or French)? Yes *15* No *27* 28

4. How should the data in this national database be made available? (Indicate in order of priority, (1) being the highest.)

	1st	2nd	3rd	
a. printed index	*26*	*21*	*5*	29
b. online search	*30*	*13*	*11*	30
c. request to a central clearing house	*6*	*14*	*30*	31

5. If there were a fee for access to a national database would you be willing to pay for:

a. printed index Yes *40* No *15* 32

b. online search Yes *42* No *13* 33

c. request to a central clearing house Yes *20* No *24* 34

6. Assuming a printed index were available how often should it be produced?

a. monthly *6* 35

b. quarterly *26* 36

c. semi-annually *14* 37

d. annually *18* 38

7. Do you or members of your organization presently search:

	Yes	No	
a. Canadian Education Index	*33*	*16*	39
b. Current Index to Journals in Education	*31*	*21*	40
c. Resources In Education	*34*	*17*	41
d. ONTERIS	*18*	*29*	42
e. SOCSCAN	*5*	*33*	43
f. CANOLE	*19*	*25*	44
g. DIALOG	*31*	*19*	45
h. SDC	*12*	*29*	46
i. BRS	*14*	*28*	47

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8. What access do you presently have to computer systems? (Check each applicable answer)

a. no access 17 — 48

b. access to microcomputer 24 — 49

c. access to a mini or mainframe computer 22 — 50

d. access to microcomputer or terminal with telephone connection 26 — 51

e. online access to digital telecommunication network 24 — 52

9. If in the next year you are changing your access to computer systems, which of the following do you intend to acquire? (Check each applicable answer)

a. not applicable 33 — 53

b. access to microcomputer 9 — 54

c. access to a mini or mainframe computer 9 — 55

d. access to microcomputer or terminal with telephone connection 6 — 56

e. online access to digital telecommunication network 8 — 57

f. other (please specify)_____ 2 — 58

In developing and maintaining a national database, four major considerations arise: a) who would identify the appropriate material; b) who would collect the appropriate material; c) who would be responsible for the indexing of these materials; d) from what agency would one obtain materials listed in the national database.

10. Who should identify the materials and resources for this national database? (Indicate in order of priority; (1) being the highest.)

	1st	2nd	3rd	
a. individuals and individual agencies	16	11	21	59
b. a number of regional agencies	24	24	4	60
c. a central agency	18	13	21	61
d. other (please specify)_____	2	0	0	62

11. Who should collect the materials for this national database? (Indicate in order of priority; (1) being the highest.)

	1st	2nd	3rd	
a. individuals and individual agencies	9	4	34	63
b. a number of regional agencies	20	31	2	64
c. a central agency	29	15	12	65
d. other (please specify)_____	2	0	0	66

For Office Use Only

12. Who should index the materials and resources for this national database? (Indicate in order of priority; (1) being the highest.)

		1st	2nd	3rd	
a.	individuals and individual agencies	3	3	38	67
b.	a number of regional agencies	12	39	1	68
c.	a central agency	44	7	6	69
d.	other (please specify)_____	1	0	0	70

13. Who should be responsible for distributing, loaning, reproducing, etc. materials listed in the national database? (Indicate in order of priority; (1) being the highest.)

		1st	2nd	3rd	
a.	the individual or individual agency holding the materials	12	2	34	71
b.	a number of regional agencies	17	29	5	72
c.	a central agency	30	19	8	73
d.	other (please specify)_____	2	0	0	74

14. Do you presently hold mat. dealing with multicultural, intercultural and ethnic education? 75

Yes 44 No 15

IF YOU ANSWERED NO TO THE ABOVE QUESTION, PLEASE GO DIRECTLY TO QUESTION 20.

15. Indicate the form(s) in which these materials exist

a.	printed materials 46	76
b.	curriculum guides 21	77
c.	microform 15	78
d.	film/filmstrips 20	79
e.	slides 14	80
f.	photographs 10	Card 2 11
g.	videotape/disc 11	12
h.	audiotape/disc 11	13
i.	computer diskettes 4	14
j.	artifacts, eg. art/costumes 3	15
k.	lists of resource persons or organizations 20	16

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16. Is information regarding the materials you hold in this area presently available through:

    a. online access? *11* 17

    b. computer output microform? *12* 18

    c. printed index? *13* 19

    d. card catalogue? *31* 20

    e. other (please specify)_____ *11* 21

17. Would you be willing to contribute information on your present holdings to a national database on multicultural, intercultural and ethnic education? 22
    Yes *38* No *2*

18. Would you be willing to contribute information on new acquisitions to a national database on multicultural, intercultural and ethnic education? 23
    Yes *39* No *2*

19. Recognizing there may be some materials you could not lend or duplicate, would you in principle be willing to loan or duplicate materials identified in the national database to individuals or organizations other than your normal clientel? 24
    Yes *36* No *2*

20. In principle, would you be willing to identify materials and resources other than your own acquisitions for inclusion in a national database on multicultural, intercultural and ethnic education? 25
    Yes *24* No *30*

21. In principle, would you be willing to collect materials for inclusion in a national database on multicultural, intercultural and ethnic education? 26
    Yes *30* No *25*

22. In principle, would you be willing to index materials and resources for inclusion in a national database on multicultural and intercultural education? 27
    Yes *21* No *35*

23. In principle, would you be willing to act as a distribution/lending etc. agency for materials listed in the national database? 28
    Yes *29* No *24*

24. In principle, would you be willing to pay a fee to a regional or central clearinghouse in order to obtain materials listed in the national database? 29
    Yes *39* No *14*

ANY ADDITIONAL INFORMATION AND/OR COMMENTS WOULD BE APPRECIATED.

THANK YOU FOR YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT IN THE STAMPED, SELF-ADDRESSED ENVELOPE BY NOV. 9, 1983.

CANADIAN COUNCIL FOR MULTICULTURAL AND INTERCULTURAL EDUCATION

A Survey Regarding the Feasibility of Establishing a National Database in Multicultural, Intercultural and Ethnic Education

This survey is being conducted by the Department of Educational Administration, University of Alberta as part of a larger study which is being carried out on behalf of the Canadian Council for Multicultural and Intercultural Education.

>This survey was sent to 22 publishers across Canada.

4 _ _ _ _ _ _ _

National Database Feasibility Study

The questions on the following pages are being asked with a view to obtaining information regarding the feasibility of establishing a national database in multicultural, intercultural and ethnic education. Such a database could include listings of materials and resources dealing with all levels of education, pre-school through adult, and which could be used both formally or informally.

Please answer the following questions as completely as possible by checking the appropriate blank(s) and return the questionnaire by Nov. 9, 1983. Thank you.

For Office Use Only

Card 1

1. Do you presently publish materials and resources dealing with multicultural, intercultural and ethnic education? 11
   Yes 8 No 5

IF YOU ANSWERED NO TO THE ABOVE QUESTION, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

2. Indicate the form(s) in which these materials exist

   a. printed materials 8 — 12
   b. curriculum guides 1 — 13
   c. microform 1 — 14
   d. film/filmstrips 2 — 15
   e. slides 4 — 16
   f. photographs 1 — 17
   g. videotape/disc 3 — 18
   h. audiotape/disc 1 — 19
   i. computer diskettes 0 — 20
   j. artifacts, eg. art/costumes 1 — 21

3. Would a national database listing materials and resources in multicultural, intercultural and ethnic education be of use to your organization? 22
   Yes 9 No 0

4. Would you like to have your materials in multicultural, intercultural and ethnic education listed in a national database? 23
   Yes 9 No 0

For Office Use Only

5. In principle, would you be willing to index your materials for inclusion in a national database on multicultural, intercultural and ethnic education? 24
   Yes *10* No *0*

6. Would you be willing to index this material in:

   a. English? Yes *10* No *0* 25

   b. French? Yes *4* No *3* 26

   c. the language of production (if not English or French)? 27
   Yes *1* No *2*

7. In principle, would you be willing to provide one copy of each title that you publish in multicultural, intercultural and ethnic education to a central clearinghouse to be indexed in a national database? 28
   Yes *9* No *0*

8. In principle, would you be willing to pay a fee to have information regarding your materials included in a national database? 29
   Yes *2* No *6*

9. Should a fee be charged for access to a national database on multicultural, intercultural and ethnic education? 30
   Yes *4* No *6*

ANY ADDITIONAL INFORMATION AND/OR COMMENTS WOULD BE APPRECIATED.

THANK YOU FOR YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT IN THE STAMPED, SELF-ADDRESSED ENVELOPE BY NOV. 9, 1983.

CANADIAN COUNCIL FOR MULTICULTURAL AND INTERCULTURAL EDUCATION

A Survey Regarding the Feasibility of Establishing a National Database in Multicultural, Intercultural and Ethnic Education

This survey is being conducted by the Department of Educational Administration, University of Alberta as part of a larger study which is being carried out on behalf of the Canadian Council for Multicultural and Intercultural Education.

>This survey was sent to 108 cultural and ethnic groups across Canada.

5 _ _ _ _ _ _ _

National Database Feasibility Study

The questions on the following pages are being asked with a view to obtaining information regarding the feasibility of establishing a national database in multicultural, intercultural and ethnic education. Such a database could include listings of materials and resources dealing with all levels of education, pre-school through adult, and which could be used both formally or informally.

Please answer the following questions as completely as possible by checking the appropriate blank(s) and return the questionnaire by Nov. 9, 1983. Thank you.

For Office Use Only

Card 1

1. Would a national database listing materials and resources in multicultural, intercultural and ethnic education be of use to your organization? 11

   Yes *45* No *11*

   IF YOU ANSWERED NO TO THE ABOVE QUESTION, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

2. If such a national database existed, what type(s) of multicultural, intercultural and ethnic materials and resources would your organization want included?

   a. printed materials *46* 12
   b. curriculum guides *31* 13
   c. microform *8* 14
   d. film/filmstrips *30* 15
   e. slides *30* 16
   f. photographs *25* 17
   g. videotape/disc *32* 18
   h. audiotape/disc *18* 19
   i. computer diskettes *16* 20
   j. artifacts, eg. art/costumes *22* 21
   k. names of resource persons or organizations *44* 22

3. Assuming a national database contains multicultural, intercultural and ethnic materials in many different languages, would you or members of your organization search such a database in

   a. English? Yes *46* No *0* 23
   b. French? Yes *12* No *13* 24
   c. the language of production (if not English or French)? 25
      Yes *22* No *7*

For Office Use Only

4. How should the data in this national database be made available? (Indicate in order of priority, (1) being the highest.)

	1st	2nd	3rd	
a. printed index	35	7	0	26
b. online search	4	10	17	27
c. request to a national information centre	11	11	11	28

5. If there were a fee for access to a national database would you be willing to pay for:

a. printed index Yes 31 No 8 29

b. online search Yes 13 No 16 30

c. request to a national information centre Yes 20 No 14 31

6. Assuming a printed index were available how often should it be produced?

a. monthly 2 32

b. quarterly 11 33

c. semi-annually 17 34

d. annually 17 35

7. In principle, would you be willing to pay a fee to obtain a copy of materials listed in the national database? 36
Yes 39 No 6

8. What access do you presently have to computer systems? (Check each applicable answer)

a. no access 34 37

b. access to microcomputer 10 38

c. access to a mini or mainframe computer 6 39

d. access to microcomputer or terminal with telephone connection 5 40

e. online access to digital telecommunication network 3 41

9. If in the next year you are changing your access to computer systems, which of the following do you intend to acquire? (Check each applicable answer)

a. not applicable 36 42

b. access to microcomputer 2 43

c. access to a mini or mainframe computer 3 44

d. access to microcomputer or terminal with telephone connection 2 45

e. online access to digital telecommunication network 0 46

f. other (please specify)_____ 0 47

For Office Use Only

10. Would you be willing to let the name of your organization be listed as a resource group in the national database? 48
Yes *46* No *2*

11. Does your organization presently produce materials which could be used in multicultural, intercultural and ethnic education? 49
Yes *33* No *15*

12. Does your organization presently collect materials which could be used in multicultural, intercultural and ethnic education? 50
Yes *37* No *9*

IF YOU ANSWERED NO TO THE ABOVE TWO QUESTIONS, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

13. Indicate the form(s) in which these materials exist

a. printed materials *31* 51

b. curriculum guides *10* 52

c. microform *2* 53

d. film/filmstrips *10* 54

e. slides *11* 55

f. photographs *16* 56

g. videotape/disc *10* 57

h. audiotape/disc *5* 58

i. computer diskettes *2* 59

j. artifacts, eg. art/costumes *10* 60

k. lists of resource persons or organizations *20* 61

14. Would you like to have the materials which your organization produces listed in a national database? 62
Yes *31* No *2*

15. In principle, would you be willing to provide one copy of each title that you produce in multicultural, intercultural and ethnic education to a national information centre to be indexed in a national database? 63
Yes *31* No *3*

16. Recognizing there may be some materials you could not lend or duplicate, would you in principle be willing to loan or duplicate materials identified in the national database? 64
Yes *29* No *3*

ANY ADDITIONAL INFORMATION AND/OR COMMENTS WOULD BE APPRECIATED.

THANK YOU FOR YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT IN THE STAMPED, SELF-ADDRESSED ENVELOPE BY NOV. 9, 1983.

CANADIAN COUNCIL FOR MULTICULTURAL AND INTERCULTURAL EDUCATION

A Survey Regarding the Feasibility of Establishing a National Database in Multicultural, Intercultural and Ethnic Education

This survey is being conducted by the Department of Educational Administration, University of Alberta as part of a larger study which is being carried out on behalf of the Canadian Council for Multicultural and Intercultural Education.

>This survey was sent to 120 cultural and ethnic educational specialists across Canada.

6 _ _ _ _ _ _ _

National Database Feasibility Study

The questions on the following pages are being asked with a view to obtaining information regarding the feasibility of establishing a national database in multicultural, intercultural and ethnic education. Such a database could include listings of materials and resources dealing with all levels of education, pre-school through adult, and which could be used both formally or informally.

Please answer the following questions as completely as possible by checking the appropriate blank(s) and return the questionnaire by Nov. 9, 1983. Thank you.

For Office Use Only

Card 1

1. Would a national database listing materials and resources in multicultural, intercultural and ethnic education be of use to you? 11

   Yes *82* No *6*

   IF YOU ANSWERED NO TO THE ABOVE QUESTION, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

2. If such a national database existed, what type(s) of multicultural, intercultural and ethnic materials and resources would you want included?

   a. printed materials *80* 12
   b. curriculum guides *67* 13
   c. microform *21* 14
   d. film/filmstrips *63* 15
   e. slides *51* 16
   f. photographs *42* 17
   g. videotape/disc *52* 18
   h. audiotape/disc *33* 19
   i. computer diskettes *30* 20
   j. artifacts, eg. art/costumes *28* 21
   k. names of resource persons or organizations *72* 22

3. Assuming a national database contains multicultural, intercultural and ethnic materials in many different languages would you search such a database in

   a. English? Yes *81* No *0* 23
   b. French? Yes *19* No *30* 24
   c. the language of production (if not English or French)? 25
      Yes *19* No *26*

For Office Use Only

4. How should the data in this national database be made available? (Indicate in order of priority, (1) being the highest.)

	1st	2nd	3rd	
a. printed index	49	19	3	26
b. online search	18	16	19	27
c. request to a national information centre	22	13	24	28

5. If there were a fee for access to a national database would you be willing to pay for:

a. printed index Yes *57* No *14* 29

b. online search Yes *39* No *19* 30

c. request to a national information centre Yes *36* No *21* 31

6. Assuming a printed index were available how often should it be produced?

a. monthly *2* 32

b. quarterly *21* 33

c. semi-annually *37* 34

d. annually *25* 35

7. In principle, would you be willing to pay a fee to obtain a copy of materials listed in the national database? 36
Yes *73* No *5*

8. What access do you presently have to computer systems? (Check each applicable answer)

a. no access *32* 37

b. access to microcomputer *31* 38

c. access to a mini or mainframe computer *22* 39

d. access to microcomputer or terminal with telephone connection *20* 40

e. online access to digital telecommunication network *11* 41

9. If in the next year you are changing your access to computer systems, which of the following do you intend to acquire? (Check each applicable answer)

a. not applicable *48* 42

b. access to microcomputer *5* 43

c. access to a mini or mainframe computer *8* 44

d. access to microcomputer or terminal with telephone connection *8* 45

e. online access to digital telecommunication network *4* 46

f. other (please specify)_____ *0* 47

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10. Would you be willing to let your name be listed as a resource person in the national database? 48
Yes *76* No *4*

11. Do you presently produce materials which could be used in multicultural, intercultural and ethnic education? 49
Yes *64* No *16*

12. Do you presently collect materials which could be used in multicultural, intercultural and ethnic education? 50
Yes *70* No *11*

IF YOU ANSWERED NO TO THE ABOVE TWO QUESTIONS, YOU DO NOT NEED TO ANSWER THE REST OF THE QUESTIONNAIRE. WE WOULD APPRECIATE IT IF YOU WOULD RETURN THE QUESTIONNAIRE IN THE STAMPED, SELF-ADDRESSED ENVELOPE AS SOON AS POSSIBLE.

13. Indicate the form(s) in which these materials exist

a. printed materials *69* 51

b. curriculum guides *41* 52

c. microform *0* 53

d. film/filmstrips *19* 54

e. slides *19* 55

f. photographs *15* 56

g. videotape/disc *15* 57

h. audiotape/disc *10* 58

i. computer diskettes *3* 59

j. artifacts, eg. art/costumes *9* 60

k. lists of resource persons or organizations *30* 61

14. Would you like to have the materials which you produce listed in a national database? 62
Yes *63* No *2*

15. In principle, would you be willing to provide one copy of each title that you produce in multicultural, intercultural and ethnic education to a national information centre to be indexed in a national database? 63
Yes *67* No *2*

16. Recognizing there may be some materials you could not lend or duplicate, would you in principle be willing to loan or duplicate materials identified in the national database? 64
Yes *58* No *6*

ANY ADDITIONAL INFORMATION AND/OR COMMENTS WOULD BE APPRECIATED.

THANK YOU FOR YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT IN THE STAMPED, SELF-ADDRESSED ENVELOPE BY NOV. 9, 1983.

CANADIAN COUNCIL FOR MULTICULTURAL AND INTERCULTURAL EDUCATION

A Survey Regarding the Feasibility of Establishing a National Database in Multicultural, Intercultural and Ethnic Education

This survey is being conducted by the Department of Educational Administration, University of Alberta as part of a larger study which is being carried out on behalf of the Canadian Council for Multicultural and Intercultural Education.

>This survey was sent to 25 members of the CCMIE and their alternates.

7 _ _ _ _ _ _ _

National Database Feasibility Study

Please answer the following questions as completely as possible by checking the appropriate blank(s) or providing written responses. Thank you.

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Card 1

1. If a national database of multicultural, intercultural and ethnic materials and resources existed, what kinds of information would you want included?

   a. printed materials *18* — 11
   b. curriculum guides *16* — 12
   c. microform *6* — 13
   d. film/filmstrips *15* — 14
   e. slides *10* — 15
   f. photographs *8* — 16
   g. videotape/disc *14* — 17
   h. audiotape/disc *11* — 18
   i. computer diskettes *12* — 19
   j. artifacts, eg. art/costumes *4* — 20
   k. lists of resource persons or organizations *16* — 21

2. Do agencies or organizations exist in your province or territory which collect materials and resources for multicultural, intercultural and ethnic education? — 22
   Yes *15* No *2*

3. If you answered yes to Question 2, please list these agencies or organizations.

   _____

   _____

   _____

4. Do agencies or organizations exist in your province or territory which collect information on materials and resources for multicultural, intercultural and ethnic education? (Note: Such an agency does not necessarily collect the material itself, but instead would list materials and resources available elsewhere.) — 23
   Yes *12* No *4*

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5. If you answered yes to Question 4, please list these agencies or organizations.

_____

_____

_____

6. When searching for materials and resources on multicultural, intercultural and ethnic education, do you presently use:

		Yes	No	
a.	Canadian Education Index	10	3	24
b.	Current Index to Journals in Education	14	1	25
c.	Resources In Education	11	1	26
d.	ONTERIS	3	5	27
e.	SOCSCAN	0	6	28
f.	CANOLE	0	6	29
g.	DIALOG	1	5	30
h.	SDC	0	6	31
i.	BRS	0	6	32

7. In addition to the agencies listed in Questions 3 & 5, and the indices or systems listed in Question 6, by what other methods do you learn about multicultural, intercultural and ethnic materials and resources?

_____

_____

_____

In developing and maintaining a national database, four major considerations arise: a) who would identify the appropriate material; b) who would collect the appropriate material; c) who would be responsible for the indexing of these materials; d) from what agency would one obtain materials listed in the national database.

8. Who should identify the materials and resources for this national database? (Indicate in order of priority: (1) being the highest.)

		1st	2nd	3rd	
a.	individuals and individual agencies	4	2	6	33
b.	a number of regional agencies	5	8	0	34
c.	a central agency	9	0	4	35
d.	other (please specify)_____	2	0	0	36

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9. Who should collect the materials for this national database? (Indicate in order of priority; (1) being the highest.)

		1st	2nd	3rd	
a.	individuals and individual agencies	3	1	9	37
b.	a number of regional agencies	6	7	0	38
c.	a central agency	10	3	2	39
d.	other (please specify)_____	0	0	0	40

10. Who should index the materials and resources for this national database? (Indicate in order of priority; (1) being the highest.)

		1st	2nd	3rd	
a.	individuals and individual agencies	2	1	7	41
b.	a number of regional agencies	3	7	0	42
c.	a central agency	12	1	2	43
d.	other (please specify)_____	0	0	0	44

11. Who should be responsible for distributing, loaning, reproducing, etc. materials listed in the national database? (Indicate in order of priority; (1) being the highest.)

		1st	2nd	3rd	
a.	the individual or individual agency holding the materials	3	1	10	45
b.	a number of regional agencies	8	4	0	46
c.	a central agency	7	6	1	47
d.	other (please specify)_____	0	0	0	48

12. Assuming a national database contains multicultural, intercultural and ethnic materials in many different languages.:

a. should each item in such a database be searchable in

1) English? Yes 14 No 2 — 49

2) French? Yes 13 No 3 — 50

3) the language of production (if not English or French)? Yes 12 No 2 — 51

b. would you or members of your organization search such a database in

1) English? Yes 16 No 0 — 52

2) French? Yes 4 No 1 — 53

3) the language of production (if not English or French)? Yes 7 No 2 — 54

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13. How should the data in this national database be made available? (Indicate in order of priority. (1) being the highest.)

	1st	2nd	3rd	
a. printed index	9	1	3	55
b. online search	3	4	5	56
c. request to a central clearinghouse	5	6	2	57

14. Should a fee be charged for access to the national database? 58
Yes 8 No 10

15. Should the national database be supported solely by charges made to users of the database? 59
Yes 4 No 13

16. If the national database should not or cannot be self-supported, what methods or agencies exist that could contribute to the financial support of the database?

_____

_____

_____

17. Would you be willing to let your name be listed as a resource person in the national database? 60
Yes 17 No 1

ANY ADDITIONAL INFORMATION AND/OR COMMENTS WOULD BE APPRECIATED.

THANK YOU FOR YOUR ASSISTANCE IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT IN THE STAMPED, SELF-ADDRESSED ENVELOPE BY NOV. 9, 1983.

Appendix 2 - Potential Funding Agencies

This appendix contains a description of a number of philanthropic agencies which have been identified as potential sources of funding for a national database of multicultural, intercultural and ethnic education resources and materials. These agencies were identified from The Canadian Directory to Granting Agencies and Foundations, 5th ed. (A. Arlett, 1982).

Of the grant limitations identified for the various agencies, four limitations seem to be fairly consistant amoung organizations.

The organization making application must:

1) *provide a detailed description of the organization and the project being proposed;*
2) *be registered with Revenue Canada as a charity, and must provide a registration number with the application;*
3) *submit audited financial statements; and*
4) *provide a budget indicating current and future needs, as well as indicating existing sources of funding and support.*

The specific grant limitations identified in the following table are those restrictions applicable to particular organizations.

Table 14

Potential Funding Agencies (National Emphasis)

Name and Address	Purposes and Interests	Grant Limitations, Amounts
Canada Packers Foundation 95 St.Clair Avenue, West Toronto, Ontario M4V 1P2 Attention: A.R.Poretti, Treasurer	-facilitating contributions to organizations interested in Museums and Canadian studies -Canadian studies 1978 -Museums -Heritage	$436,180.00 (total number = 115 (1977))
Eaton Foundation 1 Dundas Street West 20th Floor Toronto, Ontario M5B 1C8 Attention: Col. F.F. McEachren, Chairman	-providing funds for charitable community endeavors -Historical preservation -Heritage	-organizations in Canada in principle cities and heavily populated areas -organizations must be well established, showing proof of community proof of community support for at least 2 years -range: $100 - $2,500 (operating costs) $25,000 max. (capital donation) 1981 338 grants for a total of $988,035
Hope Charitable Foundation c/o The National Trust Company Limited 21 King Street, East Toronto, Ontario M5C 1B3 Attention: John L. McCarthy, President	-will provide financial support to projects involving highed education, social welfare, and the performing arts -Cultural activitites -Performing Arts	-Canada wide for educational purposes -Total (1979) $88,300
Audrey S. Hollyer Charitable Foundation c/o Hendon Estates Ltd. Suite 202 1262 Don Mills Road Don Mills, Ontario M3B 2W7 Attention: Geoffrey Hobsbacom, Treasurer	-assisting charitable and educational organizations in Canada -Heritage -Museums	43 grants for a total of $111,750
MacDonald Stewart Foundation CP 12000 Succursale A. Montreal, P.Q. H3C 3P3 Attention: Kathleen H. Mather, Secretary	-the promotion of edcuation and museums -the purchasing of museum objects -the strength of historical knowledge and understanding	-for projects having permanent benefits, infields where government or public support is nor readily available

Table 14

Potential Funding Agencies (National Emphasis - Continued)

Name and Address	Purposes and Interests	Grant Limitations, Amounts
J.W. McConnell Foundation Inc. 1130 Ouest, Rue Sherbrooke Bureau 510 Montreal, P.Q. H3A 2N3 Attention: Miss Jacqueline Prevost, SecretaryTreasurer	-Libraries -Museums -Performing Arts	-grants are not provided for publication of books, magazines, films, tapes or other media of communication
McLean Foundation 95 St.Clair Avenue West 16th Floor Toronto, Ontario M4V 1P2 Attention: H.M. Cunningham, SecretaryTreasurer	-grants are made for socially desireable purposes, following a flexbile policy, with particular emphasis on projects showing promis of general social benefit. -History -Language -Museums -Canadian and Native studies -Northern Affairs	-project must be Canadian or have Canadian content -application dealines are irregular, approximately quarterly -1980 grants $4,211,797 generally less than $5,000
Molson Family Foundation CP 1600 Place d'Armes Montreal, P.Q. H2Y 3L3 Attention: Stephen T. Molson, Secretary	-Innovative programs -Education -Humanities	-grants are not provided for publication of books, magazines, films, tapes, or other media of communication -1981: 30 grants for a total of $1,066,000 -range: $5,000 - $130,000(1980)
Gladys and Merrill Muttart Foundation 530, 9919 - 105 Street Suite 530 Edmonton, Alberta T5K 1B1 Attention: Mr. K.A.Hodgson, Executive Director	-to support objects of national, patriotic and social character -Museums -Race relations -Native studies -Northern Affairs -Native peoples	-application should indicate necessity of on-going support -1980: 14 grants for a total of $346,305 -range:$500 to $130,000 (1980)
Gwendolyn Peacher Foundation of the Traditional Arts 263 Adelaide Street West 5th Floor Toronto, Ontario M5H 1Y2 Attention: Leon Kossar, Secretary	-to promote the preservation and development of folk arts and multicultural traditions of Canada -to advance the knowledge, appreciation and study of the same	

Table 14

Potential Funding Agencies (National Emphasis - Continued)

Name and Address	Purposes and Interests	Grant Limitations, Amounts
Richardson Century Fund 1 Lombard Place 30th Floor Winnipeg, Manitoba R3B 0Y1 Attention: John C. Freeman, SecretaryTreasurer	-Education -Museums -Music -Performing Arts	-applications are reviewed every 2 weeks -preference is given to communities where J. Richardson and affiliated companies are represented -1980: 224 grants for a total of $376,815 -range: $200 to $10,000 (1980)
Henry and Alvin Rosenberg Foundation 120 Adelaide Street, West 18th Floor Toronto, Ontario M5H 1S8 Attention: Beryl M. Roberts, Secretary	-to donate funds for charitable, educational and cultural purposes	-1979:total grants $78,170
Sully Foundation Champion Road Machinery Co. P.O.Box 10 Goderich, Ontario N7A 3Y6 Attention: John C. Freeman, SecretaryTreasurer	-makes grants to cultural and educational projects	-1980: total grants $73,892
Joseph Wolinsky Foundation 400 - 228 Notre Dame Avenue Winnipeg, Manitoba R3B 1N7 Attention: David Wolinsky, Secretary	-supports charitable and educational organizations -Education -Heritage -Humanities	-application deaaline: Nov. 1 -1980: 70 grants for a total of $63,006 -range: $100 to $17,500
Wood Gundy Charitable Foundation Royal Trust Tower P.O. Box 274 TorontoDominion Center Toronto, Ontario M5K 1M7 Attention: Ian Clark Woolley, Secretary	-makes donations to worthy charities in Canada, including educational and cultural organizations	-1979 grants $257,530

Table 15

Potential Funding Agencies (Provincial Emphasis)

Name and Address	Purposes and Interests	Grant Limitations, Amounts
E.W. Bickle Foundation 1 First Canadian Place P.O. Box 90 1 First Canadian Place Toronto, Ontario Attn: Miss E.Joan Williams	-Education -Libraries -Museums	In 1981 Range $250.00-$10,000.00 54 grants for a total of $162,600.00
Kahanoff Foundation Suite 1250 321 - 6th Avenue, S.W. Cadillac Fairview Building Calgary, Alberta T2P 3H3 Attn: Alan C. Moon	-the support of education -the provision of assistance to artistic and cultural organizations	-Language -Literature -Humanities
Leon and Thea Koerner Foundation Box 46669 Postal Station G Vancouver, B.C. V6R 4K8 Attn: Mrs. D.W.H. Creighton	-fostering social and cultural development	-Cultural activities -History
Laidlaw Foundation 60 Street - Clair Avenue, East Suite 203 Toronto, Ontario M4T 1N5 Attn: Nathan Gilbert		-Native studies Historical preservation -Libraries
R. Samuel McLaughlin Foundation c/o National Trust Company, Ltd. 21 King Street, East Toronto, Ontario M5C 1B3 Attn: Preston J. Sewell		-Higher education (special projects) -Libraries -Heritage -Museums
Winspear Foundation 513 McLeod Building 10136 - 100 Street Edmonton, Alberta T5J 0P1 Attn: P.C. Zoszec		-Museums -Canadian studies

Appendix 3 - Alternative Scenarios

This appendix contains some examples of the scenarios compiled which represented different features of a multicultural and intercultural education database. A short description of each scenario follows, with Table 16 showing the values identified for each component of each scenario.

Status Quo: The current state of affairs.

Alternative L1: Status Quo except for a weak central control.

Alternative L2: The central agency extablishes a bibliographic standard on a microcomputer system and gives it to all agencies for their use. They can use it, change it, provide information on disks, or not, at their choice.

Alternative L3: The central agency extablishes a bibliographic standard on a central computer system and allows all agencies to use it. They can use the standard and contribute to it, but cannot change it. Central agency produces printed output.

Alternative L4: All local operation, with strong central control, a central computer system and work in English and French.

Alternative L5: All local operation, with strong central control, a central computer system and work in English, French and heritage language.

Alternative R1: Regional operation, with moderate or strong central control, a central computer system and work in English.

Alternative R2: Regional operation, with moderate or strong central control, a central computer system and work in English and French.

Alternative R3: Regional operation, with moderate or strong central control, a central computer system and work in English, French and heritage language.

Alternative C1: Central Clearinghouse with no regional or local on-line access.

Alternative C2: Central Clearinghouse with regional or local on-line access.

Alternative C3: Central Clearinghouse with no regional and local on-line access; moderate central contol.

Alternative C4: Central Clearinghouse with no regional and local on-line access; information and materials identified regionally.

Alternative C5: Central Clearinghouse with regional or local on-line access.

Alternative C6: Central Clearinghouse with regional and local on-line access; information

and materials identified locally.

Table 16

Alternative Organization and Operation of CCMIE Database

Alternative	Identification Performed:	Collection Performed:	Indexing Performed:	Dissemination of Information Performed:	Loan of Materials Performed:	Kind of Computer System	Operation of Computer System	Degree of Central Control	Material Format	Language
Status Quo	Locally	Locally	Locally	Locally	Locally	None or Local Systems	None or Locally	No Central Control	Unknown	Unknown
Alternative I.1	Locally	Locally	Locally	Locally	Locally	None or Local Systems	None or Locally	Weak Central Control	Standard	Unknown
Alternative I.2	Locally	Locally	Locally	Locally	Locally	Individual Microcomputer Systems	Locally	Weak Central Control	Standard	English
Alternative I.3	Locally	Locally	Locally	Centrally	Locally	Central System	Centrally	Moderate Central Control	Comprehensive	English or Annually for Print
Alternative I.4	Locally	Locally	Locally	Centrally	Locally	Central System	Centrally	Moderate Central Control	Comprehensive	English & French or Annually for Print
Alternative I.5	Locally	Locally	Locally	Centrally	Locally	Central System	Centrally	Moderate Central Control	Comprehensive	English, French & Heritage Language

Table 16 (Continued)

Alternative Organization and Operation of CCMIL Database

Alternative	Identification Performed:	Collection Performed:	Indexing Performed:	Dissemination of Information Performed:	Loan of Materials Performed:	Kind of Computer System	Operation of Computer System	Degree of Central Control	Material Format	Language
Alternative R0	Regionally	Regionally	Regionally	Centrally	Regionally	Central System	Centrally	Weak Central Control	Comprehensive	English
Alternative R1	Regionally	Regionally	Regionally	Centrally	Regionally	Central System	Centrally	Moderate Central Control	Comprehensive	English
Alternative R2	Regionally	Regionally	Regionally	Centrally	Regionally	Central System	Centrally	Moderate Central Control	Comprehensive	English & French
Alternative R3	Regionally	Regionally	Regionally	Centrally	Regionally	Central System	Centrally	Strong Central Control	Comprehensive	English & French
Alternative R4	Regionally	Regionally	Regionally	Regionally	Regionally	Regional Microcomputer	Regional	Weak Central Control	Comprehensive	English or Annually for Print
Alternative R5	Regionally	Regionally	Regionally	Regionally	Regionally	Regional Microcomputer	Regional	Moderate Central Control	Comprehensive	English or Annually for Print

Table 16 (Continued)

Alternative Organization and Operation of CCMIE Database

Alternative	Identification Performed:	Collection Performed:	Indexing Performed:	Dissemination of Information Performed:	Loan of Materials Performed:	Kind of Computer System	Operation of Computer System	Degree of Central Control	Material Forms:	Language
Alternative R6	Regionally	Regionally	Regionally	Regionally	Regionally	Regional Microcomputer or Mainframe Systems	Regional	Strong Central Control	Comprehensive	English or Annually for Print
Alternative R7	Regionally	Regionally	Regionally	Regionally	Regionally	Distributed Network	Regional	Weak Central Control	Comprehensive	English or Annually for Print
Alternative R8	Regionally	Regionally	Regionally	Regionally	Regionally	Distributed Network	Regional	Moderate Central Control	Comprehensive	English or Annually for Print
Alternative R9	Regionally	Regionally	Regionally	Regionally	Regionally	Distributed Network	Regional	Strong Central Control	Comprehensive	English or Annually for Print

Table 16 (Continued)

Alternative Organization and Operation of CCMIE Database

Alternative	Identification Performed:	Collection Performed:	Indexing Performed:	Dissemination of Information Performed:	Loan of Materials Performed:	Kind of Computer System	Operation of Computer System	Degree of Central Control	Material Format	Language
Alternative C1	Centrally	Centrally	Centrally	Centrally	Centrally	Central System	Centrally	Strong Central Control	Comprehensive	English & French
Alternative C2	Centrally	Centrally	Centrally	Centrally	Centrally	Central Mainframe System with Network Access	Centrally	Strong Central Control	Comprehensive	English & French
Alternative C3	Regionally	Regionally	Regionally	Centrally	Regionally	Central Mainframe System	Centrally	Moderate Central Control	Comprehensive	English & French
Alternative C4	Regionally	Centrally	Centrally	Centrally	Centrally	Central Mainframe System	Centrally	Strong Central Control	Comprehensive	English & French
Alternative C5	Regionally	Regionally	Regionally	Centrally	Regionally	Central Mainframe System	Centrally	Strong Central Control	Comprehensive	English & French

Table 16 (Continued)

Alternative Organization and Operation of CCMIE Database

Alternative	Identification Performed:	Collection Performed:	Indexing Performed:	Dissemination of Information Performed:	Loan of Materials Performed:	Kind of Computer System	Operation of Computer System	Degree of Central Control	Comprehensive Material Format	English & French Language
Alternative C6	Locally	Centrally	Centrally	Centrally	Centrally	Central Mainframe System with Network Access	Centrally	Moderate Central Control	Comprehensive	English & French
Alternative C7	Locally	Locally	Regionally	Centrally	Locally	Central Mainframe System with Network Access	Centrally	Moderate Central Control	Comprehensive	English & French
Alternative C8	Locally	Locally	Locally	Centrally	Locally	Central Mainframe System with Network Access	Centrally	Low Central Control	Comprehensive	English & French
Alternative C9	Locally	Locally	Locally	Centrally	Locally	Central Mainframe System with Network Access	Centrally	Moderate Central Control	Comprehensive	English & French
Alternative C10	Locally	Locally	Locally	Centrally	Locally	Central Mainframe System with Network Access	Centrally	Strong Central Control	Comprehensive	English & French

Appendix 4 - Proposal From Infomart

This Appendix contains a formal proposal from Infomart to develop and operate the proposed national database of multicultural, intercultural and ethnic education resources and materials.

Infomart 1661 Portage Ave., Suite 511, Winnipeg, Manitoba R3J 3T7 (204) 772-9453 Telex: 07-55863

March 12, 1984

Mr. T. Craig Montgomerie
Research Associate Professor
Department of Education Administration
7-104 Education North
The University of Alberta
Edmonton, Alberta
T6G 2G5

Dear Mr. Montgomerie:

Re: Canadian Council for Multicultural and Intercultural Education (CCMIE) Database

We are pleased to make our recommendation for an introductory videotex-based information retrieval and delivery system for your client, the C.C.M.I.E., for the coming year.

As this is a new undertaking for your client, we understand the difficulty in putting a definition to the exact requirement. We are therefore making a recommendation which will involve minimal investment on their part, but which will provide a basis for a definition for a larger-scale, longer range service for the years to come. Infomart recommends a phased approach which would start off with an initial one year program similar to the following:

I. Purchase of 20 or 50 NAPLPS decoder terminals for placement in key centres of usage within the already existent low cost dial-up areas of Canada i.e. Manitoba, Saskatchewan, Alberta, and Southern Ontario.

II. Development of necessary software to create a "gateway" environment connecting a videotex database to make information available to both the Test Group and Grassroots users alike as a research project initially but ultimately as the framework for a full-fledged information dissemination and retrieval system exploiting every capability for the videotex medium. These include:
- two-way applications (interactive calculators)
- gateway applications involving other databases
- electronic publishing of newsletters (weekly, monthly), and bulletins
- transactional applications - electronic ordering
- bibliographic data storage
- graphically illustrated applications

The costs in the first phase would be similar to the following:

I. NAPLPS Decoder Terminals
Electrohome integrated terminals including display, NAPLPS capability, 1200/150 modem, keyboard, each

Quantity of 20 - $2400 each	$48,000
Quantity of 50 - $2400 each	$120,000

Installlation extra.

II. Gateway Software Development
Handler for remote system at going rates.
Handler for Infomart Telidon system at special rate of $300 per man day

Additional for modems, line charges, special port requirements, extra.

III. Videotex Database
Page creation:

Recommend 800 pages at special rate of $50/page	$40,000

Page storage and processing:

800 pages for 12 months at special rate of $1/page/mo.	$ 9,600
TOTAL CREATION & STORAGE	$49,600

Page changes and up-dates:
Flat rate $45/hour

A typical total cost may work out as follows:

Phase I:	
I Terminals to @ $2400.00	$48,000
II Software Development	
40 man days @ $300	$12,000
III Videotex Page Creation/Storage	
per estimate above	$49,600
TOTAL ESTIMATE	$109,600

The Advantages of Working with Infomart

Infomart's Grassroots Telidon system is an ideal vehicle for carrying a C.C.M.I.E. database for many reasons.

Firstly, Infomart is the leader in the development, the use, and the marketing of the world's leading videotex technology - NAPLPS (formerly Telidon).

Videotex is a superior information delivery system because it is user-friendly to the ordinary person - not just to computer knowledgeable people.

Low cost videotex networks now exist in 4 provinces - Manitoba, Saskatchewan, Alberta, Southern Ontario; and Quebec is soon to be announced.

Grassroots is already reaching almost 2,000 private homes and businesses.

Grassroots offers the capability for closed and controlled user groups within the public access structure.

Infomart has built up a high level of expertise in the design and operation of videotex databases in the long term.

Infomart has "gateway" expertise through working with the Bank of Montreal in a Home Banking environment, as well as other service providers.

We look forward to working with you, the Unviersity of Alberta, and the C.C.M.I.E., toward the development of this project.

Yours truly,

Dale Grevstad
Marketing
Representative

DG/m

Appendix 5 - Proposal From QL Systems

This Appendix contains a formal proposal from QL Systems to develop and operate the proposed national database of multicultural, intercultural and ethnic education resources and materials. It also contains examples of output from similar systems which currently are operated by QL Systems.

QL Systems Limited

December 5, 1983

T. Craig Montgomerie
Project Director
Department of Educational Administration
Faculty of Education
7-104 Education North
University of Alberta
Edmonton, Alberta
T6G 2G5

Dear Mr. Montgomerie,

Thank you very much for your letter of November 23 to Hugh Lawford at the QL head office in Kingston; the letter has been forwarded to our Calgary office for reply.

QL Systems Limited offers a full range of on-line services, including facilities for the creation and operation of private and public data bases.

We are very interested in operating your proposed national database on multicultural, intercultural and ethnic education. We feel that such a database would be a valuable addition to the more than 80 databases which we now operate. We presently have over 1500 users in Canada, the United States, Europe and Australia. These users make significant use of our databases, use which we feel would be extended to yours.

The procedure which has worked best for QL and for database sponsors whose databases are supported by QL is as follows. QL will build the database from machine-readable copy which you will supply. We will write the necessary programs to convert the data to format which can be read by the QL programs, and we will format the database to a display style to be chosen by you. We will operate the database for an experimental period of a year or two without any cost to you for creating, maintaining, updating, or storage of the data base. We will charge all users of the database for searches, and for the cost of printing retrieved documents at our high-speed printer in Kingston Ontario.

During the experimental period, we will assess the level of use which the database can secure. If QL concludes that the database can pay its own way through usage, we will continue to operate it at no cost to you other than usage charges.

2160 Bow Valley Square IV, ~~Box 4036,~~ 250 6th Ave. S.W., Calgary, Alberta
T2P 3H7 Telephone (403) 262-6505

From the outset, QL will pay to you a royalty of 10% of all billings for use of the database. Royalties are not paid for searches performed by our programming staff or marketing staff when testing or demonstrating the database. We will also supply you with monthly statistics to enable you to assess the level of use we are achieving, and the types and locations of users accessing your database.

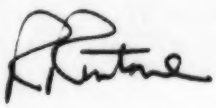
In order to market the database on QL, we will announce its availability in our on-line announcements, in our newsletters, at our training workshops, in our sales literature and at conferences. If you are willing to assist us in this regard, we will consider adding names which you suggest to our regular mailing lists, so that these new names will become recipients of our newsletters and workshop announcements. We will consider attending conferences which you feel will attract potential users. We will also contact individuals whom you feel are potential users, and will be pleased to demonstrate the system to them and to encourage them to become users. We provide private and public training workshops in all major centres in Canada.

We are enclosing our standard Agreement for Services, Equipment and Communications Facilities, as well as our regular information kit, to enable you to evaluate the extent of our services and support for our users.

This project is of great interest to us, and we hope that you will be able to make this potentially very valuable database available to our users.

I will be in Edmonton next week, and would be pleased to meet with you to discuss your project further; I will get in touch to see if you wish me to call at your office.

Sincerely,



Ruth Rintoul
Marketing Manager
Western Region

MRR/se

QL Systems Limited

March 27, 1984

Dr. T. Craig Montgomerie
Department of Educational Administration
Faculty of Education
7 - 104 Education North
University of Alberta
Edmonton, Alberta
T6G 2G5

Dear Dr. Montgomerie,

It was a pleasure to meet with you and Phyllis Kalynchuk last week to discuss ways and means of building and operating your proposed national database on multicultural and ethnic education.

Enclosed are sample documents from four QL databases, including one (CODOC) which indicates where documents in the database are held. These samples may be of assistance to you in choosing a display style for your data base.

There is no limit to the amount of information that can be entered in any part of the document. It is up to you to decide what the various headings should be called and how you'd liked the information displayed, i.e. centred, indented and so forth. I would be pleased to assist you in this regard if you'd like to send me a sample of the data.

We believe the QL High Speed package described in our literature would be especially suited to a project such as yours since it would allow operation at peak speeds, provide you with the 'full screen edit' feature which makes it very easy to correct typing errors, and would provide Block Mode operation which is especially useful for the retrieval system.

We would install a high speed package in each of your five regions, including the office where the project co-ordinator would be located. QL's high speed network is now available in Halifax, Montreal, Ottawa, Kingston, Toronto, Winnipeg, Calgary, Edmonton, Vancouver and Victoria, and perhaps soon in Regina. In each city, QL arranges for the installation of a 9600 baud circuit, and pays for the ongoing charges for these circuits. We provide an IBM 3101 Block Mode terminal and printer, as well as all necessary modems, cables, etc.

The total charges to you would be:

- $350 for each installation

- $150.00 per hour in prime time/$75.00 per hour in off-peak times for all searches in all of QL's data bases, with a minimum usage requirement of $90.00 per week on QL/SEARCH at each location

- Either $30.00 per week for unlimited usage, or $7.50 per hour, for use of QL/TEXT (text-editing system) and QL/MAIL (electronic mail system) to create and transmit to the database Co-ordinator and to QL.

- Two days of free training per year per installation.

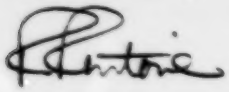
If you can send us some sample documents for your data base, we will design the coding and inputting instructions at no charge. We will also design a "blanket fill-in" form which will make typing easy. Since QL/MAIL, our electronic mail service, will be part of the package, the Regions will be able to use it to transmit completed documents to a central site where your Co-ordinator can proofread them and oversee the final editing process. Once they've been completed, they can be transmitted to QL for addition to your data base. This will be a very useful tool in maintaining consistency in the database content and editorial policy.

I have enclosed current information on QL. We are continuing to work on your other questions: QL's French capabilities, the Apple Macintosh deal including block mode input, and your sorting and hard-copy printing requirements. As I receive information on of these questions, I will provide it to you as quickly as possible.

Our first impression of the Mac's capabilities in relation to your project is that it is not suitable. We are planning to modify the Apple software, but it will be several months before it will be ready and we're not sure at this point if it will have all the features of the 3101 terminal. If you choose QL for this database project, it would be best to get the project off the ground with IBM 3101 Block Mode terminals, and switch to Macs only when they are fully capable of handling the job.

Your proposed databases are of great interest to us, and we look forward to working with you on their development.

Yours sincerley



Ruth Rintoul
Marketing Manager
Western Region

MRR/se

QL Systems Limited

QL SYSTEMS LIMITED

THE COMPANY

QL Systems Limited was incorporated in 1973 to carry forward work commenced by the QUIC/LAW Project at Queen's University. The Project was established in 1968 to investigate possible uses of computers by lawyers, with particular emphasis on the use of computers to assist legal research. Because of the rapid growth of the Project and the prospect of commercial use of the system, Queen's University asked that it be incorporated as a separate entity outside the University. Since its incorporation, QL Systems Limited has been dedicated to developing and maintaining the first Canadian commercial information retrieval system, QL/SEARCH.

QL/SEARCH - THE INFORMATION RETRIEVAL SERVICE

QL/SEARCH now provides on-line retrieval to over 80 data bases concerned with environment, parliament and government, law, news, energy, asbestos, pollution, business, mining, communications, the Canadian north, and many related subjects. The service is used across Canada, the United States, Europe, New Zealand, and Australia by researchers, governments, and by academic, legal, business, industrial and public libraries.

Some QL data bases contain the full text of publications such as Statutes and case law headnotes, others contain abstracts, and still others contain titles. The retrieval system searches each entire data base, and any document containing a search term is retrieved and can be printed.

The system handles natural language queries, provides Boolean logic, and includes phrase searching capabilities.

NEWSTEX

Updated to midnight last night, this comprehensive data base from the Canadian Press news wire service contains the complete text of news stories distributed to over 110 Canadian newspapers. It currently includes stories from 1974 to present.

2160 Bow Valley Square IV, Box 4036, 250 6th Ave. S.W., Calgary, Alberta
T2P 3H7 Telephone (403) 262-6505

VU/TEXT

VU/TEXT, the information service operated by Knight-Ridder Newspapers, Inc., is now available through QL Systems. Included in this service are the Philadelphia Daily News, the Philadelphia Enquirer, the Washington Post, and the Academic American Encyclopedia. QL provides account numbers for VU/TEXT; search commands are identical to those used for QL/SEARCH.

WESTLAW

QL is the Canadian representative for this legal information retrieval service containing over 60 data bases on U.S. law. QL provides account numbers, manuals, and training. Because WESTLAW uses QL software, many of the commands and search procedures are the same as those used for QL/SEARCH.

EQUIPMENT & COMMUNICATIONS

In major Canadian cities, QL offers a reasonably priced high-speed package operating at 9600 b.p.s. At present, this service is available in Halifax, Montreal, Ottawa, Toronto, Winnipeg, Calgary, Edmonton, Vancouver, and Victoria.

For dial-up access, users are required to have an ASCII terminal that will communicate at 300 or 1200 b.p.s. through the DATAPAC Network in Canada, GTE Telenet or Tymnet in the United States, or TELEGLOBE for countries abroad.

COST

High Speed Package

Including: IBM 3101 CRT terminal
Printer
9600 b.p.s. dedicated line
Associated modems
2 free days training per year
All searches
All royalty or copyright charges

$120.00 per hour prime time (7 a.m. - 7 p.m. weekdays)
$ 60.00 per hour evenings and weekends
Minimum usage of $90.00 per week.

Dial up Access

$60.00 per hour prime time (7 a.m. - 7 p.m. weekdays)
$30.00 per hour evenings and weekends in Canada and the United States

Plus royalty or copyright charges for some data bases.

SEARCH AIDS

QL includes one free QL/SEARCH Mini Manual and a command reference card called QUIC/LIST to assist new users in learning to use QL/SEARCH. A more detailed manual is also available at a cost of $60.00. Lists of other publications are sent to each new user.

TRAINING

QL provides public workshops in major Canadian cities. For users unable to receive training from QL, several practice data bases are available. QL will also conduct in-house private training sessions upon request.

OTHER QL SERVICES

ELECTRONIC MAIL

QL/MAIL lets you type letters or messages at your computer terminal to be transmitted to other users of the QL/MAIL service. Messages are transmitted to their destinations immediately. Cost is $20.00 per hour for dial-up access; $30.00 per week for unlimited usage on the high-speed access.

PRIVATE DATA BASE SERVICE

If you wish to create a data base of your own collection for your private use or for public access, you may use QL/TEXT, QL's text-editing system on-line to input your documents and to create a data base. If you are interested in this service, ask QL for the publication HOW TO CREATE A DATA BASE FOR OPERATION WITH QL/SEARCH. Once you have had an opportunity to read this publication, a QL representative will assist you to design a suitable format for your data base and to calculate the costs of the project.

QL/SEARCH DATA BASES

October 1, 1983

ENVIRONMENT, WATER RESOURCES, POLLUTION (WATDOC)

ASFA	Aquatic Sciences and Fisheries Abstracts
CENV	Canadian Environment
CHH	Canadian Hydrological Operational Multipurpose Subprogramme
DEL	Delft Hydro
DREF	Data Reference System
SOL	Solid Waste
SWR	Selected Water Resources Abstracts

REGIONAL BIBLIOGRAPHIES

AST	Arctic Science and Technology (ASTIS)
BNT	Boreal Northern Titles
CPL	Canadian Plains Research Inventory
YKB	Yukon Bibliography

MINING, MINERALS, RESOURCES, ENERGY

AOSI	Alberta Oil Sands Index
ASB	Asbestos Information
ENG	Energy Projects
ENP	Energy Programs
COAL	Coal Abstracts (IEA Coal Research)
HERI	Heavy Oil/Enhanced Recovery Index
MNT	Mining Technology
MNP	Mineral Processing

BUSINESS, GOVERNMENT, NEWS, MEDIA

CBI	Canadian Business Index
CODOC	Council of Ontario Universities Co-operative Documents Project
COMM	Communications Information
CNI	Canadian News Index
CPN	Canadian Press NEWSTEX, 1981 to date
CPX	Canadian Press NEWSTEX, 1974 to 1980
FEES	Fees for Library Service
IBSS	International Bibliography of the Social Sciences
MORT	Mortgage Amortizor
PDC	Predecessor and Defunct Companies

GOVERNMENT, PARLIAMENT

HOO	Hansard Oral Questions
HWQ	Hansard Written Questions
SPK	Speaker's Rulings
STO	Standing Orders of the House
OGI	Ontario Government Information

LAW - STATUTES & REGULATIONS

RSC	Statutes of Canada
CAC	Constitutional Acts of Canada
SOR	Statutory Orders & Regulations (Canada)
SA	Statutes of Alberta
SBC	Statutes of British Columbia
RBC	Regulations of British Columbia
SM	Statutes of Manitoba
SNB	Statutes of New Brunswick
SO	Statutes of Ontario
RO	Regulations of Ontario
SS	Statutes of Saskatchewan

LAW - COURT & BOARD DECISIONS

ACWS	All-Canada Weekly Summaries
AR	Alberta Reports
APR	Atlantic Provinces Reports
CCC	Canadian Criminal Cases
CRR	Canadian Regulatory Reporter
DLR	Dominion Law Reports
ECR	Exchequer Court Reports
FCR	Federal Court Reports
MAN	Manitoba Reports
NR	National Reporter
NBR	New Brunswick Reports
NFL	Newfoundland & P.E.I. Reports
NSR	Nova Scotia Reports
SASK	Saskatchewan Reports
SCR	Supreme Court Reports
SMC	Statutes of Manitoba Citator
TAR	Tax Advance Rulings
WCB	Weekly Criminal Bulletin
WWR	Western Weekly Reports

QL Systems Limited

QL Rates, effective Feb. 19, 1984

High Speed Package
(Includes CRT terminal, printer, 9600 baud circuit, modems, all searches)

	Prime time	Eve/weekend
	$150.00/hour	$75.00/hour

- $90.00 minimum usage per week
- $350.00 installation, move, removal of terminal
- 2 days free training per year
- QL/TEXT, QL/MAIL $30 per week, or $7.50 per hour

Standard Speed Users
(Customer's own equipment, dial-up through Datapac at 300 or 1200 baud)

	Prime time	Eve/weekend
- Canada Law Book databases	$85.00/hour	$40.00/hour
- Western Legal Publications	$85.00/hour	$40.00/hour
- All other databases	$75.00/hour	$30.00/hour

- Plus royalty charges on some data bases
- QL/TEXT, QL/MAIL $20.00 per hour

ALL Other Services (both High Speed and Standard Speed Users)

- WESTLAW	$150.00/hour	$150.00/hour
- VU/TEXT	$150.00/hour	$150.00/hour
- EUROLEX	$150.00/hour	$150.00/hour
- Training data bases	$ 10.00/hour	$ 10.00/hour

- Mortgage Table $3.00
- Off-Line Printing $3.00 per 1000 lines
- QL Manual $75.00 for 2-vol set; $40.00 per vol.
- QL Manual updating service $20.00 per year
- Mini Manual $5.00 (free to new users and at workshops)
- QL/MAIL User Manual $20.00
- ASTIS/QL User Manual $30.00
- Training: Public workshop full-day: $90.00 per person
  Public workshop half-day: $55.00 per person
  Private workshop full-day $400.00 per group of six
  Private workshop half-day $200.00 per group of six

2180 Bow Valley Square 4, 250 6th Ave. S.W., Calgary, Alberta T2P 3H7
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QL Systems Limited

Sample Document: CODOC - Co-operative Documents Project data base

---

REFERENCE: CA1 IA 22076152 EXF
DATE: 1976
TITLE: INDIAN EDUCATION - NATIVE BILINGUAL-BICULTURAL EDUCATION PROGRAMS.
EDUCATION INDIENNE - SYSTEME D'EDUCATION BILINGUE ET BICULTUREL POUR LES AUTOCHTONES.
CORPORATE AUTHOR: CANADA. DEPT. OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT. INDIAN AND ESKIMO AFFAIRS PROGRAM

HOLDING LIBRARIES:

UNIVERSITY OF GUELPH (76/10/22)
OGU D BL M LB 2

QUEEN'S UNIVERSITY
OKQ D BL M 1

LAURENTIAN UNIVERSITY, SUDBURY (76/11/23)
OSUL D PF M LC 8

UNIVERSITY OF WINDSOR (77/10/12)
OWA D BL M LB 1

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Telephone (403) 262-6505

QL Systems Limited

Sample Document: Canadian Plains Research Inventory

FILE NUMBER:	131
DATE OF ENTRY:	14/06/82
UPDATE:	13/04/82
CPRC NUMBER:	RHRC-76-0007
RESEARCH TYPE:	UNIVERSITY
NAME:	STEWART, J. RAY (DR.), ASSOC. PROF.
ADDRESS:	FACULTY OF EDUCATION UNIV. OF LETHBRIDGE LETHBRIDGE, ALTA. T1K 3M4
CURRENT RESEARCH:	LANGUAGE ACQUISITION AMONG CHILDREN OF VARIOUS CULTURES LEARNING ENGLISH AS A SECOND LANGUAGE, INCLUDING NATIVE CHILDREN.
RESEARCHERS/CONTACT:	STEWART J RAY
OFFICE KEYS:	CP, UNIV-LETH-ED, FORM
CLASSIFICATION:	RHRC, EDUCATION, SOCIOLOGY
KEYWORDS:	COMMUNICATION SKILLS, LANGUAGE ARTS, LANGUAGE EDUCATION, ENGLISH LANGUAGE EDUCATION, STUDENTS, ETHNIC STUDIES, NATIVE STUDIES, CHILDREN, SECOND LANGUAGE EDUCATION, NATIVE EDUCATION, EDUCATION, LANGUAGE ACQUISITION, SOCIOLOGY, LANGUAGE COMPETENENCE
LOCATIONS:	ALTA

Sample Document: Arctic Science & Technology data base

DOCUMENT NUMBER: 28401
TITLE: Opikawak: they grow up
AUTHOR: Canada. Indian and Eskimo Affairs Program. Education and Cultural Development Branch
IMPRINT: [Ottawa: Indian and Northern Affairs, 1976].
COLLATION: 38p.: ill.; 21cm.
ISBN: 0-662-00175-3
NOTE: Cover title.
Programs for Indian elementary school students in Canada.
YEAR OF PUBLICATION: 1976
ABSTRACT: ... This booklet presents the trends and expectations of programs offered both in federal and provincial schools attended by Indian and Inuit children. A brief look at the educational experiences of previous generations of native people provides the context for understanding the significance of developments taking place today. ...
ABSTRACT SOURCE: Au
BROAD SUBJ CATEGORY: TT, RR
BROAD GEOG CATEGORY: GO8
SUBJECT HEADING(S): Education, Elementary
Indians - Children
Indians - Education
Inuit - Children
Inuit - Education
GEOGRAPHIC AREA(S): Canada
DOCUMENT LOCATION: ACU

QL Systems Limited

Sample Document: Alberta Oil Sands Index

NUMBER:	004882
PUB. DATE:	January , 1969
TITLE:	Some Observations Concerning the Possibility of the Gregoire Lake Band (Anzac, Alberta) Becoming Wealthy through Natural Resources Development, By L R Gue
REFERENCE:	University of Alberta, Jan 1969 (8)
AUTHOR(S):	GUE, L R
CORPORATE AUTHOR(S):	UNIVERSITY OF ALBERTA
PUBLICATION SOURCE(S):	UNIVERSITY OF ALBERTA
ABSTRACT:	A survey among the Indian people at Wabasca indicated that if sudden wealth fell upon the community, the residents would elect to save the money until plans were made for its use. The second choice would be to allow the government to administer the money for the community. The author feels that the community would demand control of the money and would be divided among themselves as how to administer the money. They would, to the white man's thinking, recklessly use the capital. White teachers should learn the Indian man's traditional values and then proceed to instruct him in white man's economics. 2 references
SUBJECTS:	O-2 ANZAC, ALTA O-2 EDUCATION O-1 NATIVE PEOPLE

Appendix 6 - Prototype System Documentation

CCMIE Prototype Database

Technical Manual

and

User's Manual

May 1984

PART 1

CCMIE PROTOTYPE DATABASE

INTRODUCTION

1. Preface

This is a preliminary documentation for the prototype database prepared for the Canadian Council for Multicultural and Intercultural Education. This manual contains sections from The Boreal Institute for Northern Studies Library: SPIRES Systems Manual by Brenda Chawner. In particular, Section 2 - A Brief Introduction, and Section 3 - MATERIALS - The Indexing Subfile, are modified from Chawner's chapter.

The CCMIE Data base has been developed using SPIRES (Stanford Public Information Retrieval System), a general-purpose database management system which runs on the Amdahl 5860 at the University of Alberta's Department of Computing Services. The CCMIE Prototype System consists of the following subfiles: MATERIALS, RESOURCES, RESOURCE CENTRES, SUBJECTS, and CULTURES. The MATERIALS subfile may be utilized to produce formatted listings of materials and to perform online searches for information. The RESOURCES subfile may be utilized for searching information regarding resource people in the areas of multicultural and intercultural education. The RESOURCE CENTRES subfile includes information relevant to the location of materials and resources, this subfile cannot be searched and is utilized for the purpose of providing support to the resources and materials subfile.

The CULTURES and SUBJECTS subfiles contain the coding schemes presented in the Outline of Cultural Materials and Outline of World Cultures respectively. These two coding schemes were derived from the Human Resources Area Files (HRAF). These two files provide descriptor indexes to the two major files (MATERIALS and RESOURCES).

This manual is divided into three distinct parts. This part provides a brief introduction to SPIRES and the organization of the CCMIE database. The second part, the Technical Manual, provides a detailed description of the five subfiles in the CCMIE database. The third part is the prototype system User's Manual.

2. A Brief Introduction

SPIRES was developed at Stanford University at Palo Alto, California. It is a "general-purpose" database management system, which means that it can be used for a wide variety of applications in many areas.

The first step in creating a SPIRES system is to define how data is to be interpreted. First, different kinds of records are identified, for instance in the CCMIE database, the kind of data maintained on materials is quite different from that maintained on resource agencies and individuals, hence separate records are maintained for each. Each of these records are separated into a different "subfile". Once the different subfiles have been defined, the possible data elements for the records within each subfile must be identified, out of this a file definition is developed which identifies individual elements, groups them into records, and establishes indexes.

The file definition for CCMIE describes the elements which were identified as constituting each of the typical records. For example, one section of the file definition of the CCMIE file is the MATERIALS subfile which comprises the elements in a typical bibliographic catalogue record. These elements and their use are described in Section 3.1.

Indexes are normally used for searching SPIRES databases. The indexes for MATERIALS, for example, are described in Section 3.2.

Once the SPIRES file definition has been written, special programs, called "formats", can be written to display the information contained in a subfile or to control the entry of data to the database. No formats were written for the CCMIE database since it is only a prototype database; the system-supplied default formats were deemed to be adequate.

In the case of the CCMIE database, a set of five interrelated subfiles were defined as shown in Figure 1. Of the five subfiles, two (MATERIALS and RESOURCES) are the databases which the user wishing to retrieve information would access. The other three (SUBJECTS, CULTURES and RESOURCE CENTRES) are set up to improve the efficiency of the system and to allow for easy administration of the database. Each of these five subfiles is described below.

2.1 The MATERIALS Subfile

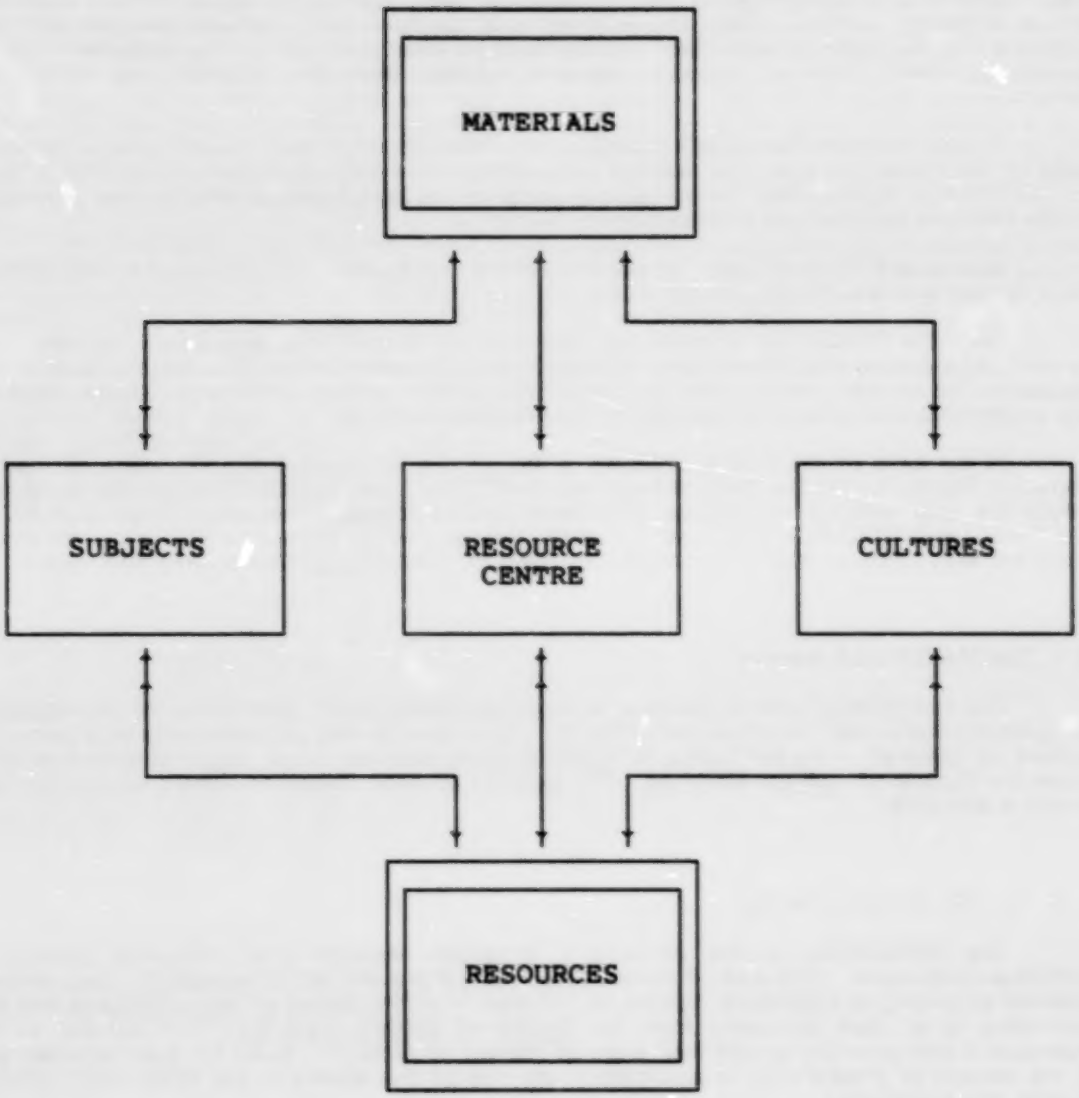
The MATERIALS subfile contains a complete bibliographic description of monographs, periodicals, audiovisual materials and artifacts. Each item is indexed according to a particular culture (or cultures) from the Outline of World Cultures and also according to at least one entry from the Outline of Cultural Materials. The location of each Resource Centre where the item exists is also given.

2.2 The RESOURCES Subfile

The RESOURCES subfile contains a complete description of resource centres or individuals who work in the area of multicultural, intercultural and ethnic education. Each entry is indexed according to a particular culture (or cultures) from the Outline of World Cultures and also according to at least one entry from the Outline of Cultural Materials. The address of the individual is also given along with their areas of interest or expertise, costs for their services, etc. If the person or organization is associated with one of the entries in the RESOURCE CENTRE subfile, this is indicated.

Figure 1

The Prototype System



‡ indicates initial passing of linkage information

† indicates linkage between files

2.3 The CULTURES Subfile

The CULTURES subfile enables linkage within and between the MATERIALS and the RESOURCES subfiles so that any material or resource individuals or agencies with the same entry from the Outline of World Cultures can be linked together. Since entries in the Outline of World Cultures are coded, this subfile contains the code and the literal description in each official language. Hence, indexing an entry in either the MATERIALS subfile or the RESOURCES subfile makes it automatically searchable in either language.

2.4 The SUBJECTS Subfile

The SUBJECTS subfile enables linkage within and between the MATERIALS and the RESOURCES subfiles so that any materials or resource individuals or agencies with the same entry from the Outline of Cultural Materials can be linked together. Since entries in the Outline of Cultural Materials are coded, this subfile contains the code, and the literal description in each official language. As a result, indexing an entry in either the MATERIALS subfile or the RESOURCES subfile makes it automatically searchable in either language.

2.5 The RESOURCE CENTRE Subfile

The RESOURCE CENTRE subfile was created for efficiency reasons. Since a number of materials (or resources) may come from the same centre, the official entry for the name, address, postal-code, etc. for each centre would need to be made only once in this subfile. Each time a new entry was made in either the MATERIALS subfile or the RESOURCES subfile, the RESOURCE CENTRE subfile would be referenced instead of redundantly entering all the information on location.

PART 2

CCMIE PROTOTYPE DATABASE

TECHNICAL MANUAL

3. MATERIALS - The Indexing Subfile

The indexing subfile is a SPIRES subfile called MATERIALS. It is used to produce formatted listings of materials and perform online searches. Section 3.1 describes the data elements that make up a record.

3.1 MATERIALS Data Elements

The data elements used by the indexing system are listed in the order in which they occur in the MATERIALS file definition. Standard cataloguing practice is generally followed. The data elements are listed in the following order: first,the required elements that are fixed in both length and number of occurences; followed by the elements that are required, but vary in length; then the elements that are optional; finally, special elements, called "virtual elements", that can be created when needed.

3.1.1 Fixed, Required Elements

The data elements described in the following section must occur, and have a fixed length.

3.1.1.1 ACCESSION-NUMBER, ACCSSN

(Occurs once)

This element is the unique key that identifies each record. The number is automatically assigned by SPIRES when a record is first added to the system; from then on, it may be used to refer to the record for updating or displaying. The last digit of the ACCSSN is a check digit, which makes it difficult to remove or update the wrong record.

3.1.1.2 DATE-ENTERED, DE

(Occurs once)

The date a record was added to the system; this is automatically supplied by SPIRES and is not entered by the data entry person.

3.1.1.3 DATE-UPDATED, DU

(Occurs once)

The date a record was last modified; this is automatically supplied by SPIRES.

3.1.1.4 FORMAT-TYPE, FT

(Occurs once)

This is an one digit number indicating the type of record; it is used to determine the format on output from the subfile.

1 => monograph entered under author.

2 => monograph entered under title.

3 => periodical open-entry entered under title of periodical.

4 => periodical article entered under author.

5 => periodical article entered under title.

6 => media entered under title

7 => media entered under author

3.1.2 Varying, Required Elements

The data elements described in the following section vary in length, but must occur.

3.1.2.1 MATERIAL-TYPE, TYPE

(Occurs once)

This is description of the kind of material. Possible values include:

Monograph

Journal

Photograph

Film

Curriculum Guide

Microform

Filmstrip

Slide

Videotape

Audiotape

Computer Diskette

Artifact

Kit

3.1.2.2 TITLE, TI, T

(Occurs once)

This is the complete title of the item, including subtitles, translated titles, etc. Record the title as found on the title page, following normal cataloguing practice; e.g. separate subtitle from title proper with a space colon space (" : "), separate translated title from title proper with a space equal sign space (" = "), etc.

3.1.2.3 IMPRINT, IMP, I

(Occurs once)

This is the imprint of the item. The actual content of this element depends on the data-type of the item being catalogued. In general, the following scheme applies:

Format-type 1 => Imprint is: "Place : Publisher,"

Format-type 2 => Imprint is: "Place : Publisher,"

Format-type 3 => Imprint is: "Place : Publisher,"

Format-type 4 => Imprint is: "Name of journal, volume number,issue number, month,"

Format-type 5 => Imprint is: "Name of journal, volume number, issue number, month,"

Format-type 6 => Imprint is: "Place : Publisher,"

Format-type 7 => Imprint is: "Place " Publisher,"

3.1.2.4 DATE-PUBLISHED, DATE, DP, PD

(Occurs once)

This is the date the item was published, as closely as can be determined, following standard cataloguing practice. It may be in a variety of forms, such as "1977", "c1981", "1977-78", "1977?", "197-", etc. The punctuation following the Date-published is determined by the data-type:

Format-type 1 => date should end with a full-stop (".") or "?")

Format-type 2 => date should end with a full-stop (".") or "?")

Format-type 3 => date should end with a hyphen ("-"), if an open-entry, or a full-stop (".") or "?") if closed.

Format-type 4 => date should end with a comma (",")

Format-type 5 => date should end with a comma (",")

Format-type 6 => date should end with a full-stop (".")

Format-type 7 => date should end with a full-stop (".")

3.1.2.5 CULTURE, C

(Can occur more than once)

This is the code for the culture from the OUTLINE OF WORLD CULTURES. On output the code and the culture it represents will be supplied.

3.1.2.6 SUBJECT, SUB, S

(Can occur more than once)

This is the code for the subject from the OUTLINE OF CULTURAL MATERIALS.

3.1.2.7 LEVEL

This is the code for the reading and interest level of the material E=Elementary; JH=Junior High; S=Senior High; A=Adult; AB=Adult Basic.

3.1.3 Optional Elements

The elements described in this section may or may not occur, depending on the particular item being catalogued.

3.1.3.1 PERS-ENTRY, PE

(Occurs once)

This element is used for the personal author. Authors' names are used as they appear on the item being indexed. There are three (3) allowed forms of personal author entry:

SURNAME, Given Names - used when there is one author.

SURNAME, Given Names and SURNAME2, Given Names - used when there are two (2) authors.

SURNAME, Given Names et al. - used when there are more than two personal authors.

All authors listed on the item being indexed are repeated in the statement of authorship, using the Pers-author-str, Section 3.1.3.3.

3.1.3.2 CORP-ENTRY, CE

(Occurs once)

This is used for the corporate author. Only the first corporate author is listed here; if there are more than one, the others appear in the statement of authorship, using the Corp-author-str, Section 3.1.3.4.

3.1.3.3 PERS-AUTHOR-STR

This is a structure used for the statement of authorship. It consists of three individual elements, one of which is required if the structure occurs. This structure was set up to allow cataloguing practice, transcribing title page information about the author's role, but still isolating the personal author's name for the index. Information should be entered for each author, editor, illustrator, etc. whose name appears on the item being indexed.

Both personal authors and corporate authors may be entered for a given item. The formats have been set up so that corporate authors always print before personal authors; this means that it is sometimes necessary to place corporate author information that is to follow personal author information into the PERS-SUFFIX field.

The individual elements making up the Pers-author-str should be entered in the following order: first the Pers-author-name, which is the key of the structure, then the Pers-prefix, if needed, finally the Pers-suffix, if necessary. The structure should be repeated for each author whose name is to appear in the statement of authorship.

PERS-AUTHOR-NAME, PANAME, PAN

(Required, occurs once in each structure)

This is used for the personal author's name. It should just include the name that is to go in the index; any other information, such as titles of nobility, honorifics, etc., should be placed in the Pers-prefix (see following section).

PERS-PREFIX, PAPREFIX, PAP

(Occurs once in each structure)

This element is used for information that is to be printed in front of a particular author's name; e.g. "written by". In the formatted output, each Pers-prefix is separated from the preceding information by a space (" "). Punctuation separating authors with different roles (space semi-colon space (" ; ") should be included in the Pers-prefix; e.g. "; illustrated by".

PERS-SUFFIX, PASUFFIX, PAS

(Occurs once in each structure)

This is used for information that is to be printed after a particular author's name. In the formatted output, each Pers-suffix is printed immediately after the author's name to which it applies. The Pers-suffix is most often used for punctuation, or numbers; e.g. ",", "III", or "Jr."

3.1.3.7 CORP-AUTHOR-STR

This is a structure similar to that used for personal authors.

CORP-AUTHOR-NAME, CANAME, CAN

(Required, occurs once in each structure)

As with the PERS-AUTHOR-NAME, this element is used for the name of the corporate author, nothing else.

CORP-PREFIX, CAPREFIX, CAP

(Occurs once in each structure)

This element is used for information that is to be printed before a particular corporate author; e.g. "prepared by". Like the PERS-PREFIX, it is separated by a space from preceding information by the output formats.

CORP-SUFFIX, CASUFFIX, CAS

(Occurs once in each structure)

This is used for information that is to be printed after a given corporate author. Like the PERS-SUFFIX, it is printed immediately after the corporate author to which it applies.

3.1.3.11 EDITION, ED

(Occurs once)

This element is used for the edition statement, which is created following normal cataloguing practice. Statements of authorship relating to the edition should be entered here as part of the Edition. For example, "2nd ed. ; edited by John H. Smith."; if John H. Smith is to be placed in the personal author index, his name must be entered again as a PERS-AUTHOR-NAME.

3.1.3.12 COLLATION, COLL, C

(Occurs once)

This is used for the collation of the item; the information it contains depends on the type of the item being indexed:

Type 1 => Collation is: "Number of pages (or volumes) : Illustration statement ; Size in cm."

Type 2 => Collation is: "Number of pages (or volumes) : Illustration statement ; Size in cm."

Type 3 => Collation does not occur

Type 4 => Collation is: "Pages of article".

Type 5 => Collation is: "Pages of article".

Type 6 => Collation is: "Physical description."
e.g., 5 microfiche, e.g., 16 mm film, 42 min.
e.g., 72 35 mm slides and 2 cassettes.

Type 7 => Collation is: "Physical description."
e.g., 5 microfiche, e.g., 16 mm film, 42 min.
e.g., 72 35 mm slides and 2 cassettes.

3.1.3.13 SERIES, SE, S

This element is used for the series statement. The output formats supply the necessary parentheses ("(" and ")") before and after the series statement is printed. The name of the series should be separated from the number using a space semi-colon space (" ; ").

3.1.3.14 ISBN

This element is used for the item's International Standard Book Number; more than one ISBN may be entered if needed. It is restricted to 18 characters in length, including punctuation.

3.1.3.15 LC-CARD-NUMBER, LC

(Occurs once)

This is used for the item's Library of Congress card number; if Canadiana cataloguing copy is used, the Canadiana number may be entered here. It is restricted to 18 characters in length.

3.1.3.16 ISSN

This element is used for the International Standard Serial Number; more than one ISSN may be entered if needed. It is restricted to 18 characters in length.

3.1.3.17 COST, PRICE

(Occurs once)

This element is used to record the list price of the item; if it is not known, the price paid by the library should be entered. It is normally entered in the currency in which it was paid for.

3.1.3.18 ANNOTATION, AN

(Occurs once)

This is used for a short annotation describing the item. It normally consists of a few short sentences to help the user decide what the item is about. It should be concise and indicative, as short as possible. Abbreviations should not be used; however, commonly used acronyms are acceptable.

3.1.3.19 CONTENTS-NOTE, NOTE, CON

This is used for notes about the contents of the item, such as the titles of individual volumes in a multiple volume work, or special sections, or to note the presence of a bibliography. Each occurence of the Contents-note begins a separate line when an output format is used.

3.1.3.20 LANGUAGE, LA

This element may be used for a code for the language of publication of the item.

3.1.3.21 LOCATION-STR

This is a structure used to indicate where the item is located. It consists of three individual elements, one of which is required if the structure occurs. This structure allows the user to find out in which location(s) an item might be found.

LOCATION

(Required, occurs once in each structure)

This is the RECORD NUMBER of one of the records in the RESOURCE CENTRE subfile.

CALL-NUMBER, OR CATALOGUE-NUMBER, CALL, CALL-NO, CN

(Optional)

This is the call number or catalogue number of the item at this location.

AVAILABILITY

(Optional)

This is an optional statement which gives the availability of the item from this location. (e.g. Will loan; Available for viewing; Restricted, etc.).

3.1.4 Virtual Elements

These elements do not exist in a record, but are created when needed. The virtual elements defined for MATERIALS are used to prepare titles for sorting.

3.1.4.1 SORT.TITLE

This element is used to prepare titles for sorting. The initial articles "A", "An", and "The" are removed from titles before sorting takes place. This does not affect the permanent value of the title.

3.1.4.2 SORT

This element is used to sort Pers-entries and Corp-entries. The initial article "The" is removed from Corp-entries before sorting takes place.

3.2 MATERIALS Indexes

Twelve (12) indexes defined for the MATERIALS subfile are described in the following section of the manual.

All MATERIALS indexes use the "#" as the truncation symbol.

3.2.1 KEYWORD, K

This index consists of single words from the Title, Print-title, Series, and Annotation elements. All punctuation is removed, and there is a short stop-list of words that are not included in the index: "about", "against", "also", "and", "any", "are", "but", "for", "from", "has", "have", "having", "how", "into", "less", "more", "must", "need", "the", and "with". All two-letter words are automatically excluded from this index.

This index is the most general one for subject searching. Note that there is no need to search both the Keyword and Title indexes, since both include words from all title-related elements.

3.2.2 TITLE-KEYWORD, TK, T

This index consists of single words from the Title, Print-title, and Series elements. All punctuation is removed, and there is a short stop-list of words that are excluded from the index: "against", "and", "are", "before", "between", "beyond", "but", "des", "for", "into", "les", "series", "that", "the", "title", "upon", and "with". All two-letter words are automatically excluded from this index.

This index is most useful when searching for a specific title.

3.2.3 PERSONAL-AUTHOR, PA

This index consists of the names of personal authors from the Pers-entry, and Pers-author-name elements. It is constructed using special SPIRES processing rules that make it possible to search for authors using both surnames and given names, in any format: e.g. "Smith, J.A." or "J.A. Smith".

3.2.4 CORP-AUTH-WORD, CA

This index consists of single words from the Corp-entry and Corp-author-name elements. All punctuation is removed, and there is a short stop list: "and", "Ltd", and "the". All two letter words are automatically excluded from this index.

3.2.5 ISBN

This index includes entries from the ISBN element. All punctuation and spaces are removed from the number, resulting (usually) in a ten-digit number.

This index is most useful when searching for a known item by its ISBN, since it is a unique identification number.

3.2.6 ISSN

This index includes entries from the ISSN element. All punctuation and spaces are removed from the number, resulting (usually) in a ten-digit number.

This index is most useful when searching for a known item by its ISSN, since it is a unique identification number.

3.2.7 LC-CARD-NUMBER, LC

This index consists of LC-card numbers.

Like the ISBN index, it provides a quick method of searching for a known item.

3.2.8 DATE-PUBLISHED, DATE, D

This index includes entries from the Date-published element. The letter "c" and the question mark ("?") are removed.

3.2.9 CENTRE, CENTER, CENTRE-ID, CENTER-ID, CE

This index has entries from the LOCATION Element, which is the Identification Number of the Resource Center. The identification number is from the RESOURCE CENTRE subfile where the item is available.

3.2.10 LEVEL

This index has entries from the LEVEL Element; a code is used to indicate the reading and interest level of the item.

3.2.11 CULTURE, CU

This index has entries from the CULTURE element, the codes and the terms from the OUTLINE OF WORLD CULTURES will be included.

3.2.12 SUBJECT, SU

This index has entries from the SUBJECT element, the codes and the terms from the OUTLINE OF CULTURAL MATERIALS will be included.

3.3 Adding New Records to MATERIALS

New records are added to the MATERIALS subfile by using the following commands:

```
$SIGNON ADP1
$RUN *SPIRES
SELECT MATERIALS
SET INPUT FORMAT
ADD
      You will be prompted for each entry here.
      Type "/N" for the ACCSSN element, SPIRES provides this value.
      Respond to all other values.  SPIRES will tell you what the record number of the
      record was after it is successfully added
ADD (Do this until all records are added.
STOP
```

4. RESOURCES

The RESOURCES subfile contains a complete description of the areas of interest, cost, etc. for resource centres or individuals who would work in the area of multicultural, intercultural and ethnic education. Each entry is indexed according to a particular culture (or cultures) from the Outline of World Cultures and also according to at least one entry from the Outline of Cultural Materials. The address of the individual is also given. If the person or organization is associated with one of the entries in the RESOURCE CENTRE database, this is indicated.

4.1 RESOURCES Data Elements

4.1.1 PERSON-ID, ID

The identification number for this record.

4.1.2 DATE-ENTERED, DE

The date a record was added to the system; this is automatically supplied by SPIRES and is not entered by the data entry person.

4.1.3 DATE-UPDATED, DU

The date a record was last modified; this is supplied by SPIRES.

4.1.4 NAME, N

This is used for a personal name.

4.1.5 OCCUPATION, O

The individual's occupation.

4.1.6 POSITION, P

The individual's position.

4.1.7 ORGANIZATION, ORG

This is the name of the organization or agency.

4.1.8 SUB-ORGANIZATION, SUBORG

This is the name of subdivision or department within the parent organization of 4.1.7.

4.1.9 ADDRESS - STRUCTURE

This includes the elements of the address of the individual or organization/agency.

4.1.10 STREET, STR

Use this for the suite or P.O. Box, if one exists, and the street number and name.

4.1.11 CITY, CIT

This identifies the city or town.

4.1.12 PROVINCE, PROV

This identifies the province or state.

4.1.13 COUNTRY, COU

This identifies the country.

4.1.14 POSTAL-CODE, POST, PC

The postal code is the coding required for the distribution of written materials.

4.1.15 TELEPHONE, PHONE, PH

This telephone number for the organization or individual should include the area code.

4.1.16 CULTURE, C

This is the code for the culture from the OUTLINE OF WORLD CULTURES. On output the code and the culture it represents will be supplied.

4.1.17 SUBJECT, SUBJ, S

This is the code for the subject from the OUTLINE OF CULTURAL MATERIALS. On output the code and the subjectr it represents willbe supplied.

4.1.18 CENTRE, AFFILIATION

The record number of a record in the RESOURCE CENTRES subfile with which this person is affiliated.

4.1.19 FEE FOR SERVICE, FEE

Indicates whether this person charges a fee for service.

4.1.20 NOTES, NOTE

This allows a short and concise description of the interests or expertise of an individual or of the activities or objectives of an organization. Not to be evaluative.

4.2 RESOURCES Indexes

The following indexes can be searched in RESOURCES. They are simple indexes built on the RESOURCES data elements defined in Section 4.1.

4.2.1 NAME, N

4.2.2 CITY, C

4.2.3 CULTURE, CU

4.2.4 SUBJECT, SU

4.2.5 CENTER, CENTER-ID, CENTRE, CENTRE-ID, CE

5. SUBJECTS Subfile

The SUBJECTS Subfile contains entries from the Outline of Cultural Materials derived from the Human Resources Area Files (HRAF). It is actually an index to each of the major CCMIE subfiles (MATERIALS and RESOURCES), and allows a "table look up" so that the actual SUBJECT-CODE can be used interchangeably with the SUBJECT.

5.1 SUBJECTS Data Elements

5.1.1 SUBJECT-CODE, CODE

This is the Subject code from the Outline of Cultural Materials.

5.1.2 SUBJECT, S

This is the subject in English as listed in the Outline of Cultural Materials.

5.1.3 SUBJECT-F, SF

This is the subject in French as translated from the Outline of Cultural Materials.

5.1.4 DESCRIPTION

This is the English description of the subject as found in the Outline of Cultural Materials.

5.1.5 DESCRIPTION-F

This is the French description of the subject as translated from the Outline of Cultural Materials.

5.1.6 PERSPOINTER

This element points at each record in the RESOURCES subfile where this particular code from the Outline of Cultural Materials.

5.1.7 MATPOINTER

This element "points" at each record in the MATERIALS subfile which has been entered with this particular code from the Outline of Cultural Materials.

6. CULTURES Subfile

The CULTURES Subfile contains entries from the Outline of World Cultures derived from the Human Resources Area Files (HRAF). It is actually an index to each of the major CCMIE subfiles (MATERIALS and RESOURCES), and allows a "table look up" so that the actual SUBJECT-CODE can be used interchangeably with the SUBJECT.

6.1 CULTURES Data Elements

6.1.1 CULTURE-CODE, CODE

This is the Culture code from the Outline of World Cultures.

6.1.2 CULTURE, S

This is the culture in English.

6.1.3 CULTURE-F, CF

This is the culture in French.

6.1.4 DESCRIPTION

This is the English description of the culture as found in the Outline of World Cultures.

6.1.5 DESCRIPTION-F

This is the French description of the culture as translated from the Outline of World Cultures.

6.1.6 PERSPOINTER

This element "points" at each record in the RESOURCES subfile which has been entered with this particular code from Outline of World Cultures.

6.1.7 MATPOINTER

This element "points" at each record in the MATERIALS subfile which has been entered with this particular code from Outline of World Cultures.

7. RESOURCE CENTRES

The RESOURCE CENTRES subfile contains entries of libraries or institutions which hold materials which are listed in the MATERIALS subfile or are the centre from which a person entered in the RESOURCES subfile works. This subfile allows maintenance of a small number of addresses of resource centres for which there is a large number of entries without the duplication of the information about the resource centre in each entry. Entries from each item of material or resource will point to this file.

7.1 RESOURCE CENTRES Data Elements

7.1.1 DATE-ENTERED. DE

The date a record was added to the system; this is automatically supplied by SPIRES and is not entered by the data entry person.

7.1.2 DATE-UPDATED, DU

The date a record was last modified; this is supplied by SPIRES.

7.1.3 ORGANIZATION, ORG

This is the name of the organization, following the entry of the name of the organization, the data entry person will be prompted for a second name of the organization if an alternate name occurs this name should be entered.

7.1.4 HEAD-ORGANIZATION, HEADORG

This is the name of groups(s) of organizations which are derived from the larger, parent organization.

7.1.5 CONTACT, CON

This refers to the name of an individual within the organization.

7.1.6 POSITION, POS

This describes the title(s) of the individual within the organization.

7.1.7 STREET, STR

The street identifies the location of the organization's address.

7.1.8 CITY, CIT

This identifies the city or town where the organization can be located.

7.1.9 PROVINCE, PROV

This refers to the provincial location of the organization.

7.1.10 COUNTRY, COU

This refers to the national location of the organization.

7.1.11 POSTAL-CODE, POST, PC

The postal code is the coding required for the distribution of written materials.

7.1.12 TELEPHONE, PHONE, PH

This refers to the telephone number for the organization, and should include the area code.

7.1.13 DESCRIPTION, DES

This describes the organization, would include the nature and function of the organization.

7.1.14 COMMENTS, COM

This provides additional information about the organization, which is not provided in the description of the organization.

7.1.15 PERSPOINTER

This element "points" at each record in the RESOURCES subfile which has been entered with this Resource Centre in the CENTRE element.

7.1.16 MATPOINTER

This element "points" at each record in the MATERIALS subfile which has been entered with this Resource Center in the LOCATION element.

PART 3

CCMIE PROTOTYPE DATABASE

USER'S MANUAL

8. Introduction

The objective of this User's Manual is to introduce some basic concepts and terminology associated with computers, guide hands-on experience on terminals and provide reference information when requested for operation within the file CCMIE. This user's manual will enable you to learn, at your own pace, how to access a subfile, how to add, modify, and remove data, and how to produce reports.

The subfiles which may be searched in the Prototype System are the MATERIALS and RESOURCES subfile. The RESOURCES subfile has been selected for the purposes of this User's Manual. A structure within the subfile "RESOURCES" provides the data related to the address which is essential in order to access the resource person. A key or tag within the address structure is designated in order to identify to address type, home or business. The pictorial structure display in Figure 1 outlines the data structure and data elements within the "RESOURCES" subfile.

9. How to Access the System

The following steps will lead you, the user, from your initial contact with the terminal to your entry into the subfile, "RESOURCES". It is important for you to follow these steps in the order as outlined. The Comments Column will include explanations for the implementation of a particular step plus helpful hints where appropriate. For purposes of clarity messages and prompts from MTS will be given in **Bold** while your response will be indicated in *Italics*.

ACTION	COMMENTS
Step 1: Switch on your terminal.	The terminal will respond with the following message and the MTS prompt character #. A prompt character occurs at the start of the line in which you are to input information. **UNIVERSITY OF ALBERTA COMPUTING SERVICES** **MTS (4824-AF52/20/60)** **#**
Step 2: Enter your signon I.D. next to the MTS prompt character #.	A signon I.D. is obtained through the University of Alberta Computing Services. Enter it as follows. **UNIVERSITY OF ALBERTA COMPUTING SERVICES** **MTS (4824-AF52/20/60)** *#SIGNON CSID* Hint: To move to the next line, hit the return key.
Step 3: Enter your password.	Your password is obtained as part of a signon I.D. You will be asked for your password as follows with a "?" prompt character. **#PASSWORD?** **?** *Password* Hint: You should change your password at frequent intervals. The sequence is as follows. *#SET PW* **#ENTER OLD USER PASSWORD.** *?OLD PASSWORD* **#ENTER NEW USER PASSWORD.** *?NEW PASSWORD* **#REENTER NEW USER PASSWORD TO CONFIRM.** *?NEW PASSWORD* **PASSWORD HAS BEEN CHANGED.** Note: Your password does not appear on the screen as a security measure. Your password can be any combination of characters. It should be meaningful to you but not obvious to another person.
Step 4: Enter RUN *SPIRES	This command will put you into the SPIRES data base management system. The subfile "RESOURCES" is within this system. *#RUN *SPIRES* **17116130** **-SPIRES 83.06** **--->**

Step 5:
Enter SELECT RESOURCES.

This command will allow you to enter the subfile "RESOURCES". The prompt character within SPIRES is "--".

Hint: It is important to type the command as illustrated with the spaces and the characters in the appropriate order. A space is a delimiter within the SPIRES system.

:--->*SELECT RESOURCES*

Step 6:
Enter SHOW FILE SIZE.

The number of records in the file will be indicated.

:--->*SHOW FILE SIZE*

--->**THE SUBFILE HAS nnn RECORDS**

10. How to search the subfile "RESOURCES"

SPIRES provides a clear simple set of commands for searching at a terminal. The subfile is selected as in the previous section and then the following search terms are utilized. Your required input is in *italics* in the Comments Column.

ACTION	COMMENTS
Step 1. Enter SHOW INDICES.	This command will provide a list of the indexes available for searching in this particular subfile. An example of the indices in the "RESOURCES" subfile is as follows. *:--->SHOW INDICES* **GOAL RECORDS: RECORD** **SIMPLE INDEX: D. DATE** **SIMPLE INDEX: NAM. NAME** **SIMPLE INDEX: POS. POSITION** **SIMPLE INDEX: ORG. ORGANIZATION** **SIMPLE INDEX: CULT. CULTURE** **SIMPLE INDEX: SUB. SUBJECT** **SIMPLE INDEX: STR. STREET** **SIMPLE INDEX: CIT. CITY** **SIMPLE INDEX: PROV. PROVINCE** **SIMPLE INDEX: POST. POSTAL CODE** **SIMPLE INDEX: PHONE. TELEPHONE** Hint: There will be a few seconds wait while the computer does the search for all the steps in this section.
Step.2. Enter SHOW ELEMENTS	This command will give a list of the data elements defined in the subfile. *:--->SHOW ELEMENTS* **SUBFILE RESOURCES** **RECO1** **DATE. D** **NAME. NAM** **POSITION POS** **ORGANIZATION ORG** **CULTURE CULT** **SUBJECT SUB** **OCCUPATION OCC** **ADDRESS** **: ADD. TYPE. TAG** **: STREET. ST** **: CITY. CIT** **: PROVINCE. PROV** **: POSTAL. CODE. POST** **: TELEPHONE. PHONE**
Step 3 FIND (INDEX SEARCH TERM) e.g. Find Culture French	The computer would display the number of records with the index culture, "French". The addition of the command "TYPE" would result in a display of each record. *--->FIND CULTURE FRENCH* **-RESULT: 4 RECORDS** *--->TYPE*

Step 4.
The addition of AND, OR and NOT will expand or delimit the search.

AND is used when both terms must appear in the search result.
OR is when one or the other term must appear.
NOT is used when a term is to be excluded.
For example:

--->*FIND CULTURE FRENCH*
-RESULT: 4 RECORDS
--->*OR CULTURE UKRANIAN*
-RESULT: 13 RECORDS
--->*AND SUBJECT FOOD*
-RESULT:2 RECORDS

Once again the input of the command TYPE will result in a visual output of the appropriate records.

11. How to Add a Record

In order to facilitate your addition of records to the subfile "RESOURCES" the following steps are outlined. Your required input is again indicated in */talics* in the comments column.

ACTION	COMMENTS
Step 1. Enter SET FORMAT $PROMPT ADD	**You are still in the subfile Resources. You therefore issue the following commands.** --->*SET FORMAT $PROMPT* --->*ADD* The computer will then ask for information on the screen as follows: (Enter at least one record in response to the information requested. The information may be real or fictitious. The record numbers are in sequence. The number will follow the number of records in the file size. If there are 10 records, your record number will be 11). Hint: When no further input is available, hit the return key and the next element will appear. Some elements will come upmore than once e.g. name. If no further information - hit return key for line (2) and the next element will appear.

--->*SET FORMAT $PROMPT*
--->*ADD*

-SPIRES ACTIVE FILE SET TO: -SAF

: PERSON-ID	*/n*
: DATE-ENTERED	*/n*
: DATE-UPDATED	*/n*
: NAME	*Dr. T. C. Montgomerie*
: POSITION(1)	*Associate Professor*
: POSITION(2)	
: ORGANIZATION(1)	*University of Alberta*
: ORGANIZATION(2)	
: SUB-ORGANIZATION(1)	*Dept. of Ed. Admin.*
: SUB-ORGANIZATION(2)	
: STREET(1)	*7-104 Ed. N.*
: STREET(2)	
: CITY	*Edmonton*
: POSTAL-CODE(1)	*T6G 2G5*
: POSTAL-CODE(2)	
: PROVINCE(1)	*Alberta*
: PROVINCE(2)	
: COUNTRY(1)	*Canada*
: COUNTRY(2)	
: TELEPHONE(1)	*(403) 432-3691*
: TELEPHONE(2)	
: OCCUPATION(1)	*University Professor*
: OCCUPATION(2)	
: CULTURE(1)	*40*
: CULTURE(2)	
: SUBJECT(1)	*40.2*
: SUBJECT(2)	
: CENTRE(1)	
: FEE.FOR.SERVICE(1)	*negotiated*
: FEE.FOR.SERVICE(2)	
: NOTES(1)	

-Assigned element: PERSON-ID 5

You continue to add records with the command

--->ADD

Step 2.
Enter CALL SPIBILD and then PROCESS CCMIE.

SPIBILD is one of the processors within SPIRES. It puts the records permanently into the file CCMIE when the command *PROCESS* is issued.

--->*CALL SPIBILD*
-SPIRES FILE BUILDER
--->*PROCESS CCMIE*
-PASSING
-PROCESSED
-COMPUTER TIME
-ELAPSED TIME

Step 3.
CALL SPIRES.

This command will take you out of SPIBILD and put you back into SPIRES.

-*CALL SPIRES*
--->

12. How to Modify Records

The ability to modify records will be of paramount importance. It is important to modify records as required in order to keep the file current. Note the required input is in *Italics* in the Comments Column.

Step 1. Enter TRANSFER nn (nn is the key of the record you wish to modify).	The record can then be modified as required. We just added Record 5, let's modify it. *--->TRANSFER 5*
Step 2. Enter EDIT.	In the edit mode the record can be modified as required. It may be done with a line editor or a visual editor. To get into the visual mode simply type in "V". *--->TRANSFER 5* *--->EDIT* *:V* *Hint: the colon ":" means you are in the edit mode.* *Note: A number of documents and courses are available on how to use the MTS Editor. These are available from the Department of Computing Services, University of Alberta.*
Step 3. EXIT THE VISUAL EDIT MODE.	*To exit the visual edit mode simply hit key marked "BREAK" or "ATTN". To exit the edit mode in the line editor simply type in "STOP".* *: STOP* *--->*
Step 4. Ensure you are in SPIRES.	The "--->"prompt indicates you are in SPIRES. If you have an MTS prompt "#", you must type in RUN *SPIRES.
Step 5. Process THE FILE after entering UPD	UPD asks the computer to update your file. Then you follow the steps to process the file. *--->UPDATE* *--->CALL SPIBILD* -SPIRES FILE BUILDER *-PROCESS CCMIE* - *-CALL SPIRES* --->

13. How to Remove Records

When information becomes outdated you must remove the record. This is accomplished with the REMOVE command.

ACTION	COMMENTS
Step 1. REMOVE Record	In the following example, record 13 would be removed. *--->Remove 13*

14. How to Prepare Reports

In order to prepare reports you will utilize the $REPORT format in SPIRES. Following the outlined steps you will be able to display the data recorded. The italics statements in the Comments Column indicate your input.

ACTION	COMMENTS
Step 1. FIND INDEX	The index you select will be reflected in your report. If you select Culture French as you did previously four records will be included in the report. --->*FIND CULTURE FRENCH* **RESULT: 4 RECORDS**
Step 2. SEQUENCE NAME	This command will ask the computer to put the records in order. --->*SEQUENCE NAME*
Step 3. Enter SET FORMAT $REPORT plus elements.	This command will indicate the format to be used. The elements you wish to have displayed must also be identified. --->*SET FORMAT $REPORT* *NAME (1, 30) TELEPHONE (+2, 11)* The elements are indicated. The values in brackets indicate the number of columns across the page for each element. The element "name" will start its' insertion at column 1 and will have 30 columns to complete it. The +2 after "telephone" leaves 2 columns for a space then leave 11 columns for the telephone number. (Complete this format as outlined or alter as you wish)
Step 4. Enter TYPE	The format entered appears on the screen. It can be changed as required using the visual editor (see Appendix C). --->*TYPE*
Step 5. Enter OUTPUT then LIST OFF UNNUMBERED.	This will result in a hard copy (printed copy) of the report as outlined. --->*OUTPUT* --->*LIST OFF UNN*

15. How to Signoff

Once you have completed your interaction with the computer, you are ready to sign off. The signoff procedure is as follows.

ACTION	COMMENTS
Step 1. Enter STOP	This command will take you out of SPIRES with the prompt "--->" into MTS with the prompt "#". *--->STOP* *#*
Step 2. Enter SIGNOFF	By typing in signoff you exit the MTS system. The terminal will then print a summary of your activities in the terminal including job number, time and costs. *# SIGNOFF*
Step 3. Turn off the terminal.	

POOR

QUALITY

ORIGINAL